

**United States Department of the Interior
Bureau of Land Management**

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***WPX Energy Production, LLC's
W Lybrook Trunk No. 1***

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Prepared for:

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1. PURPOSE AND NEED FOR ACTION

1.1. Background

WPX Energy Production, LLC (WPX) has applied for Right-of Way Grants with the Bureau of Land Management - Farmington Field Office (BLM-FFO) for the proposed W Lybrook Trunk No. 1 pipeline project (Project). The proposed W Lybrook Trunk No. 1 pipeline would be located on public lands within the BLM-FFO management area of San Juan County, New Mexico. This trunk pipeline is located east of WPX's established W Lybrook Unit (UT) boundary; the line would connect the W Lybrook UT wells to the existing gathering infrastructure at the existing Chaco Trunk No. 2. The proposed action is the approval of the ROW Grants by the BLM-FFO, located in Farmington, New Mexico.

The proposed project is located within Sections 9 of Township 23 North, Range 8 West, N.M.P.M. The proposed project would include the construction, usage, and abandonment of a 2,685-foot-long pipeline gathering system and waterline within a 40-foot-wide ROW across BLM lands. The proposed pipelines would transport natural gas, oil, and water. The proposed W Lybrook Trunk No. 1 corridor would consist of two (2) trenches, each containing a 10-inch steel natural gas/liquids line, 8-inch steel oil line and 6-inch gas/liquids line. In addition, a 6-inch poly water pipeline will be placed in either Trench 1 or 2. The two trenches would be approximately 5 feet apart.

WPX has also applied for one (1) temporary use area (TUA) with the BLM-FFO for the construction of the proposed project. The TUA would total approximately 0.06 acres on public lands managed by the BLM-FFO.

The Project would encompass approximately 2.33 acres of temporary disturbance. Maps of the proposed project area are provided in Appendix A on USGS topographic quadrangle and aerial imagery base maps. The proposed project would be located approximately 1.3 miles southeast of the intersection of County Road #7900 and U.S. Highway 550; 36.8 miles south-southeast of the town of Bloomfield, New Mexico; and 12.8 miles west-northwest of Counselor, New Mexico. (see Appendix A).

1.2. Purpose and Need for Action

The purpose of the proposed action is to provide WPX access to public lands managed by the BLM to build a pipeline gathering system and related facilities.

The need for the proposed action is established by the BLM's responsibility under the Federal Land Policy and Management Act (FLPMA) of 1976 (43 USC 1701 et seq.) to respond to a request for ROW Grants over public lands.

1.3. Decision to be Made

Based on the information in this environmental assessment (EA), the BLM-FFO will decide whether or not to issue the ROW Grants, and if so, under what terms and conditions. Under the National Environmental Policy Act (NEPA) (Public Law [PL] 91-90, 42 USC 4321 et seq.), the BLM-FFO must determine if there are any significant environmental impacts associated with the proposed action warranting further analysis in an Environmental Impact Statement (EIS). The BLM-FFO Field Manager is the responsible officer who will decide either:

To approve the ROW Grants with design features as submitted;

To approve the ROW Grants with additional mitigations;

To analyze the effects of the proposal in an EIS; or

To deny the ROW Grants.

1.4. Conformance with Applicable Land Use Plan(s)

The proposed action is in conformance with the 2003 BLM-FFO Resource Management Plan (RMP). Pursuant to 40 CFR 1508.28 and 1502.21, this site-specific EA tiers into and incorporates by reference the information and analysis contained in the BLM-FFO Proposed Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS; BLM 2003a). The RMP was approved by the September 29, 2003 Record of Decision (ROD; BLM 2003b), and updated in December 2003.

Specifically, the proposed action is in conformance with the following objectives:

It is the policy of the BLM to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs, consistent with national objectives of an adequate supply of minerals at reasonable market prices. At the same time, the BLM strives to ensure that mineral development is carried out in a manner that minimizes environmental damage and provides for the rehabilitation of affected lands. (BLM 2003b, 2-2 – 2-3)

As required by NEPA, this EA addresses site-specific resources and effects of the proposed action that were not specifically covered within the PRMP/FEIS. The proposed project would not be in conflict with any local, county, or state plans.

1.5. Relationship to Statutes, Regulations or Other Plans

WPX would comply with applicable federal, state, and local laws and regulations. Necessary permits and approvals for the proposed project would be obtained prior to project implementation.

Many requirements regulating specific environmental elements are found in the appropriate elements sections of this EA (Chapter 3). Several permits, licenses, consultations, or other requirements are discussed below.

1.5.1. Clean Water Act

Activities affecting Waters of the U.S. are regulated under the Clean Water Act (CWA) (33 USC 1251-1376; Chapter 758; PL 845; 62 Stat. 1155); reauthorized 1991). Specifically, Section 404 authorizes discharges to waters of the U.S. and Section 401 provides water quality certification for such activities. The Section 401 certification would be granted by the New Mexico Environment Department (NMED).

Under Section 402 of the Act, as amended, the U.S. Environmental Protection Agency (EPA) regulates storm water discharges from industrial and construction activities under the National Pollution Discharge Elimination System program (NPDES). Permits are required if discharge results in a reportable quantity for which notification is required (pursuant to 40 CFR 117.21, 40 CFR 302.6, or 40 CFR 110.6) or if the discharge contributes to a violation of a water quality standard. However, oil and gas activities have been exempt from NPDES permitting regulations in New Mexico.

The Nationwide Permit (NWP) program under Section 404 of the Act provides for fills to waters subject to jurisdiction under Section 404 for certain discharges. It is administered by the EPA and U.S. Army Corps of Engineers (USACE). Under the CWA, the USACE has jurisdiction over waters of the U.S. Waters of the U.S. are considered jurisdictional because they have a “significant nexus” to traditional navigable waters. The BLM-FFO and USACE - Durango Regulatory Office have determined that jurisdictional waters (i.e., waters of the U.S.) within the BLM-FFO planning area may include U.S. Geological Survey (USGS) watercourses (i.e., “blue lines” on USGS 1:24,000 topographic maps) and potentially tributaries to these USGS watercourses. The W Lybrook Trunk No. 1 pipeline would not cross any USGS blue lines that may likely be subject to regulatory jurisdiction under the USACE.

1.5.2. National Historic Preservation Act

Compliance with Section 106 responsibilities of the National Historic Preservation Act are adhered to by following the BLM – New Mexico SHPO protocol agreement, which is authorized by the *National*

Programmatic Agreement between the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers, and other applicable BLM handbooks.

1.5.3. Clean Air Act

The Clean Air Act of 1972, as amended (CAA; 42 USC 7401 et seq.), establishes national ambient air quality standards (NAAQS) to control air pollution. In New Mexico, the NMED has adopted most of the CAA into the New Mexico Administrative Code (NMAC). The NMED issues construction and operating permits for air quality and enforces air quality regulations and permit conditions.

1.5.4. Endangered Species Act

The Endangered Species Act of 1973 (ESA) [16 U.S.C. 1531 et. seq.] requires all federal departments and agencies to conserve species listed as threatened or endangered, and species listed as candidates for federal listing with the United States Fish and Wildlife Service (USFWS), or designated habitat. Under Section 7 of the Endangered ESA, all federal agencies are required to consult with the USFWS or National Marine Fisheries Service on all actions authorized, funded, or carried out by a federal agency that may affect listed species or designated critical habitat.

Consultation with the USFWS was conducted as part of the PRMP/FEIS to address the cumulative effects of RMP implementation (Consultation No. 2-22-01-1-389, Appendix M of the PRMP/FEIS).

1.5.5. Archaeological Resources

Section 106 of the National Historic Preservation Act of 1966 (NHPA), Section 3 of the Native American Graves Protection and Repatriation Act (NGPRA), and the Archaeological Resources Protection Act (ARPA) provide for protection of historical resources, including cultural and religious properties. NHPA provides protection for sites eligible for listing in the National Register of historic places through federal agency oversight, independent of land ownership when construction, operation, and reclamation of the infrastructure is located on non-Federal land that does constitute a Federal action. NGPRA provides ownership disposition of Native American resources intentionally excavated or inadvertently discovered on Federal or tribal lands. ARPA provides protection of Native American cultural and religious resources on Federal and tribal lands, in the event they are discovered.

Section 106 of the National Historic Preservation Act of 1966 (NHPA; 16 USC 470) requires federal agencies to take into account the effects of their actions on historic properties, and allow the Advisory Council on Historic Preservation a reasonable opportunity to comment. Compliance with the requirements of the NHPA is met by following the Protocol Agreement between the New Mexico BLM and New Mexico State Historic Preservation Officer, which is authorized by the Programmatic Agreement among the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (2012).

1.5.6. Paleontological Resources

Fossils found on BLM-managed lands are considered part of our national heritage and afforded protection. The BLM manages fossil resources for their scientific, educational, and recreational values. On public lands paleontological resources are managed under authorities and policy's that govern the management and preservation of the resource. Paleontological resources are managed under numerous authorities including the BLM Field Office 2003 Resource Management Plan (BLM 2003b, 4-117), Paleontological Resources Preservation Act of 2009 (Sections 6301-6312 of the Omnibus Public Lands Act of 2009, 16 USC 470aaa), Federal Land Policy and Management Act of 1976 (P.L. 94-579), National Environmental Policy Act of 1969 (P.O. 91-190), Potential Fossil Yield Classification System for Paleontological Resources on Public Lands (IM 2008-009), and the Assessment and Mitigation of Potential Impacts to Paleontological Resources (IM 2009-011). The authorities provide for civil and criminal penalties and also require that public lands be managed to preserve and protect the quality of scientific values of paleontological resources.

1.5.7. Wastes, Hazardous or Solid

The Resource Conservation and Recovery Act [(42 U.S.C.) § 6926, et. seq.] (RCRA) provides Federal authority to control hazardous wastes, including the generation, transportation, treatment, storage, and disposal of hazardous waste. It also sets forth a framework for the management of non-hazardous wastes and control of underground storage of petroleum or other hazardous materials and provides authority for state hazardous waste programs under §3006 of the Act. A 1980, amendment to RCRA conditionally exempted from regulation as hazardous wastes, “drilling fluids, production waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas. On July 6, 1988, EPA determined that oil and gas exploration, development and production (ED&P) wastes would not be regulated as hazardous wastes under RCRA. A simple rule of thumb was developed for determining if an ED&P waste is likely to be considered exempt or non-exempt from RCRA regulations: If (1) the waste came from down-hole, or (2) the waste was generated by contact with the oil and gas production stream during removal of produced water or other contaminants, the waste is most likely to be considered exempt by EPA.

The Comprehensive Environmental Response Compensation and Liability Act [(42 U.S.C.) §9601, et seq.] (CERCLA) provides Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment and provides for liability of persons responsible for releases of hazardous waste. Despite many oil and gas constituent wastes being exempt from hazardous waste regulations, certain RCRA exempt contaminants could be subject to regulations as hazardous substances under CERCLA. The New Mexico the Oil Conservation Division (OCD) administers hazardous waste regulations for oil and gas activities in New Mexico.

All wastes would be disposed of in a proper manner as required by federal and state law, and as described in the Conditions of Approval (COAs). No hazardous or solid waste materials are present within the analysis area. The notification of releases such as natural gas, natural gas liquids, and petroleum, outside a facility site is required under CERCLA and under BLM NTL-3A.

1.5.8. Public Health and Safety

All worker safety is governed by Occupational Safety and Health Administration (OSHA) safety laws and regulations. Worker safety incidents must also be reported to the BLM under the procedures of Notice to Lessee (NTL)-3A. Pipeline safety regulations are administered by OSHA as well as Department of Transportation (DOT) regulations. Pipeline safety regulations (49 CFR Parts 190 and 192) govern design, construction and operation of gas transmission lines. Any incidents involving DOT-regulated pipelines must be reported under these regulations (District 2003a).

Most substances and wastes generated at oil and gas facilities are exempt from regulation under the Resource Conservation and Recovery Act (1976). The Environmental Protection Agency (EPA) and DOT regulate materials associated with well construction and production activities that are classified as hazardous. When significant amounts of chemicals are stored on-site, governmental agencies will be notified as required under the Emergency Planning and Community Right to Know Act (1986). The notification of releases such as natural gas, natural gas liquids, and petroleum, outside the facility site is required under the Comprehensive Environmental Response Compensation and Liability Act, 1980 (CERCLA) and under BLM NTL-3A.

1.6. Scoping, Public Involvement, and Issues

1.6.1. Scoping and Public Involvement

The BLM-FFO publishes a NEPA log for public inspection. This log contains a list of proposed and approved actions within the BLM-FFO. The log is located on the BLM's New Mexico website (http://www.blm.gov/nm/st/en/prog/planning/nepa_logs.html).

An on-site meeting was held for the proposed project on November 19, 2015 and second on-site meeting was held for the proposed project on March 17, 2016. Attendees at the on-site meetings included WPX, BLM-FFO representatives, the dirt work contractor, the project surveyor, an archeological consultant, and an environmental consultant (EIS, LLC). A public invitation to the on-site meeting was posted online (http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office/ffo_oil_and_gas/ffo_onsites.html); no private citizens or groups attended. A BLM-FFO Interdisciplinary Team meeting was held on January 19, 2016 to discuss the proposed action. At the aforementioned meetings, potential issues of concern were identified by the BLM-FFO.

Based on the size and scale, routine nature, and potential impacts associated with the proposed action, no additional external scoping was conducted. The proposed project is within the Lybrook Fossil Area SDA and, as such, will be posted for public comment for 30 days online on the BLM-FFO website.

1.6.2. Issues to be Analyzed

The following issues were identified during internal scoping as potential issues of concern for the proposed action. These issues will be addressed in this EA.

- How would the proposed project activities impact air resources?
- How would the proposed project activities impact upland vegetation?
- How would the proposed project activities impact the establishment and distribution of noxious and invasive weeds?
- How would the proposed project activities impact wildlife, including migratory bird species?
- How would the proposed project activities impact the following BLM Special Status Species: Bendire's thrasher (*Toxostoma bendirei*), golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), gunnison's prairie dog (*Cynomys gunnisoni*), Aztec gilia (*Aliciella Formosa*), and the Brack's hardwall cactus (*Sclerocactus cloveriae* ssp. *Brackii*)?
- How would the proposed project activities impact livestock grazing?
- How would the proposed project activities impact cultural resources?
- How would the proposed project activities impact paleontology?
- How would the proposed project activities impact public health and safety?
- How would the proposed project activities impact economic features of the community?

1.6.3. Issues Considered but Not Analyzed

The following issues were identified during scoping as issues of concern that would not be impacted by the proposed action or that have been covered by prior environmental review. These issues will not be analyzed in this EA.

Areas of Critical Environmental Concern (ACECs)

The nearest Area of Critical Environmental Concern (ACEC) to the proposed action is the Pierre's Site ACEC/Chacoan Outliers located 17 miles west.

U.S. Fish and Wildlife Service (USFWS)-Listed Species

The Endangered Species Act (ESA) of 1973 requires all federal departments and agencies to conserve threatened, endangered, and critical and sensitive species and the habitats on which they depend, and to consult with the U.S. Fish and Wildlife Service (USFWS) on all actions authorized, funded, or carried out by the agency to ensure that the action will not likely jeopardize the continued existence of any threatened and endangered species or adversely modify critical habitat. Consultation with the USFWS, as required by Section 7 of the ESA, was conducted as part of the Farmington PRMP/FEIS (Consultation No. 2-22-01-I-389) to address cumulative effects of RMP implementation. The consultation is summarized in Appendix M of the PRMP/FEIS. No unaccounted-for water depletions within USFWS-listed fish habitat would occur as a result of the proposed project. Therefore, there is no need for additional Section 7 consultation.

Native American Religious Concerns

For the proposed action, identification efforts for Native American Religious Concerns included a review of existing published and unpublished literature (e.g., Van Valkenburgh 1941, 1974; Brugge 1993; Kelly, et al. 2006), development of the site-specific Class III survey report prepared for the proposed action (La Plata Archaeological Consultants [LAC] Report No. 2015-4c [2015a]), and a review by the BLM's cultural resources program regarding the presence of Traditional Cultural Properties (TCPs) identified through ongoing BLM tribal consultation efforts.

There are currently no known remains that fall within the purview of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA; 25 USC 3001) or the Archaeological Resources Protection Act (ARPA; 16 USC 470) within the proposed project area. The proposed action would not impact any known TCPs, prevent access to sacred sites, prevent the possession of sacred objects, or interfere with or hinder the performance of traditional ceremonies and rituals pursuant to the American Indian Religious Freedom Act of 1978 (AIRFA; 42 USC 1996) or Executive Order (EO) 13007.

2. PROPOSED ACTION AND ALTERNATIVE(S)

2.1. Alternative A: No Action

The "No-Action" alternative would deny the approval of the ROW Grants, causing the project not to take place.

2.2. Alternative B: Proposed Action

The proposed action is the BLM-FFO approval of the ROW Grants associated with WPX's W Lybrook Trunk 1 Pipeline project. The proposed project would include the construction, operation, maintenance, and eventually, the final abandonment of one pipeline corridor. The proposed project would commence after the ROW Grants are issued.

The Proposed Action includes the installation of the W Lybrook Trunk No. 1 pipeline across public lands. This pipeline will transport produced products off unit from oil and natural gas wells in the W Lybrook UT to the existing Chaco Trunk No. 2 gathering system. The proposed W Lybrook Trunk No. 1 pipeline would be 2,685 feet long within a 40-foot wide ROW. Approximately 158.8 feet would overlap the proposed W Lybrook UT Nos. 701H & 702H well pad from the edge of the well pad, to the well flags. Approximately 61 feet of pipeline would overlap the construction zone. Approximately 1,111.5 feet of pipeline would run cross country to the top of a mesa where it meets up with the proposed and approved Williams Field Service's (WFS) Lateral H-30 pipeline. The remaining 1,353.7 feet has been aligned parallel and overlapping the Lateral H-30 pipeline to the tie-in location on the existing Chaco Trunk No. 2. The proposed pipeline system will consist of two trenches. Each trench would contain a 10-inch steel natural gas/liquids line, 8-inch steel oil line and 6-inch gas/liquids line. In addition, a 6-inch poly water pipeline will be placed in either Trench 1 or 2.

WPX has also applied for one (1) TUA with the BLM-FFO for the construction of the proposed project. The TUA would be utilized along the W Lybrook Trunk No. 1 pipeline for the segregation and storage of black clay soils. These segregated soil horizons would be returned as practicable to pre-disturbance conditions. This TUA would be 100-feet long from STA 19+38.7 to STA 20+38.7 and would be 25-feet wide on the north side of the ROW. The TUA would be fully reclaimed upon completion of pipeline installation.

2.2.1. Location of Proposed Project Area

Maps of the Proposed Action area are provided in Appendix A. The Proposed Action area is plotted on the Lybrook NW, New Mexico, 7.5-minute USGS quadrangles and the 2011 New Mexico Resource Geographic Information System Program aerial photograph.

The proposed W Lybrook Trunk No. 1 pipeline would be located on public lands within the BLM-FFO management area of San Juan County, New Mexico. This trunk pipeline is located east of WPX's established W Lybrook UT boundary; the line would connect the W Lybrook UT Nos. 701H & 702H proposed well-connect pipeline infrastructure to the Chaco Trunk No. 2. The proposed tie-in location on the Chaco Trunk No. 2 would be located approximately 1.3 miles southeast of the intersection of County Road #7900 and U.S. Highway 550; 36.8 miles south-southeast of the town of Bloomfield, New Mexico; and 12.8 miles west-northwest of Counselor, New Mexico. Legal coordinates are shown in Table 1 below. The Project lies within the Escavada Wash watershed boundary.

The general region surrounding the proposed project area is characterized by badlands, mesas, and relatively flat lowland valleys. There are many broad, braided, shallow washes in the area.

Legal land description of the proposed project is provided in Table 1, below.

Table 1. Legal Land Description for the Proposed Project

Township, Range	Section	Quarter-Quarter	Project Feature
Township 23 North, Range 8 West	9	Southwest ¼ of the Southeast ¼	W Lybrook Trunk 1 Pipeline
Township 23 North, Range 8 West	9	South ½ of the Southwest ¼	W Lybrook Trunk 1 Pipeline

2.2.2. Description of Proposed Project

For a detailed description of design features and construction practices associated with the proposed action, refer to the ROW Grant Applications on file at the BLM-FFO. Construction plats associated with the proposed project provide additional details (Appendix B).

Design Features and Best Management Practices

WPX would adhere to the stipulations attached to the approved ROW Grants. The following general design features and best management practices (BMPs) would occur.

Control of Waste

- Liquid and solid wastes would be disposed of at an appropriate waste-disposal site. The proposed project area would be maintained in a sanitary condition. Hazardous substances would be handled and disposed of according to federal law. Waste resulting from construction activities would be removed from the proposed project area and disposed of in an authorized area, such as an approved landfill.

Protection of Paleontological Resources

- If a paleontological site is discovered, the BLM would be notified and the site would be avoided by personnel, personal vehicles, and company equipment. Workers would be informed that it is illegal to collect, damage, or disturb some such resources, and that such activities are punishable by criminal and/or administrative penalties.
- Any paleontological resource discovery by the Holder, or any person working on his behalf on public or Federal land, shall be immediately reported to the Authorized Officer. The Holder shall suspend all operations in the immediate area of such discovery until given written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant scientific values. The Holder will be responsible for the cost of the evaluation. The results of further investigation will dictate site

specific stipulations for avoidance or salvage of any potentially significant paleontological resources. Any decision as to proper mitigation measures will be made by the Authorized Officer, after consultation with the Holder.

Protection of Cultural Resources

- All cultural resource stipulations would be followed as indicated in the Cultural Resource Records of Review, attached to the stipulations in the approved ROW Grants. These stipulations could include, but would not be limited to, temporary or permanent fencing or other physical barriers, monitoring of earth disturbing construction, reduction of the proposed project areas and/or establishment of specific construction avoidance zones, and employee education.
- Employees, contractors, and sub-contractors associated with the proposed project would be informed by WPX that cultural sites are to be avoided by personnel, personal vehicles, and company equipment. These individuals would be informed that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and/or administrative penalties under the provisions of ARPA.
- In the event of a cultural discovery during construction, WPX would immediately stop all construction activities in the immediate vicinity of the discovery and immediately notify the archaeological monitor, if present, or the BLM. The BLM would then evaluate or cause the site to be evaluated. Should a discovery be evaluated as significant (e.g., eligible for the National Register of Historic Places [NRHP] or protected under NAGPRA or ARPA), it would be protected in place until mitigating measures could be developed and implemented according to guidelines set by the BLM.

Protection of Flora and Fauna, including Special Status Species and Livestock

- Vegetation removed during construction, including trees that measure less than 3 inches in diameter (at ground level) and slash/brush, will be chipped or mulched and incorporated into the topsoil as additional organic matter. If trees are present, all trees 3 inches in diameter or greater (at ground level) will be cut to ground level and delimbed. Tree trunks (left whole) and cut limbs will be stacked. The subsurface portion of trees (tree stumps) will be hauled to an approved disposal facility.
- Should any active raptor nests be observed within one-third mile of the proposed project area or should any Special Status Species (listed by the USFWS or BLM) be observed within the proposed project area prior to or during project implementation, construction would cease and the BLM-FFO would be immediately contacted. The BLM-FFO would then ensure evaluation of the resource. Should a discovery be evaluated as significant (protected under the ESA, etc.), it would be protected in place until mitigation could be developed and implemented according to guidelines set by the BLM.
- During the biological surveys, approximately 11 Brack's fishhook cacti (a BLM Special Status Species) were recorded within the proposed project area and another population cluster of 47 within 30-50ft of edge of disturbance. After a preconstruction survey on BLM lands, these Brack's cacti and any other that may be impacted by proposed project will be transplanted off-site prior to the construction phase of the proposed project. Transplanting will be conducted at the direction of the BLM/FFO in accordance with the current transplant protocol.
 - Transplants will be monitored once every growing season for a period of 5 years, following the BLM monitoring plan. A monitoring plan will be submitted to the BLM for approval within 6 months of the transplant date. Annual monitoring efforts will document survival, vigor, and reproduction of transplanted as well as naturally occurring cacti. Annual monitoring reports analyzing cumulative survival, vigor, and reproduction of naturally occurring vs. transplanted cacti, will be submitted to the BLM within 6 months of completion of spring monitoring efforts.
 - The scraping, proper storage, and re-spreading of suitable substrate within Aztec gilia/Brack's hardwall cactus habitat would take place during interim reclamation to preserve the seed bank.

- Wildlife hazards associated with the proposed project would be fenced, covered, and/or contained in storage tanks, as necessary.
- Livestock grazing operators in the vicinity of the proposed project area would be contacted by WPX at least 10 days prior to operations. Open holes would be barricaded to ensure the safety of livestock and wildlife. If present, any range improvements (such as fences, gates, cattleguards, or waterlines) disturbed during drilling, completion, or reclamation activities would be repaired to the condition they were in prior to disturbance. Repairs, if needed, would take place immediately following the disturbance.
- All existing improvements (such as fences, gates, and bar ditches) will be repaired to previous or better than pre-construction conditions. Cut fences will be tied to H-braces prior to cutting and openings will be protected as necessary during construction to prevent the escape of livestock. A temporary closure will be installed the same day the fence is cut. Following reclamation, the fence will be reconstructed to BLM specifications.
- Backfilling operations will be performed within a reasonable amount of time to ensure that the trenches are not left open for more than 24 hours. If a trench is left open overnight, it will be temporarily fenced or a night watchman will be utilized. The excavated soils will be returned to the trenches, atop the pipe, and compacted to prevent subsidence. The trenches will be compacted after approximately 2 feet of fill is placed over the pipe and after the ground surface has been leveled.
- Escape ramps/crossovers will be constructed every 1,320 feet. The ends of the open trench will be sloped each night with a 4:1 slope.
- Established livestock and wildlife trails will be left in place as crossovers. In areas where active grazing is taking place, escape ramps/crossovers will be placed every 500 feet. Crossovers will be a minimum of 10 feet wide and not fenced.
- The end of the pipe will be plugged to prevent animals from crawling in.
- Before the trench is closed, it will be inspected for animals. Any trapped wildlife or livestock will be promptly removed and released at least 150 yards from the trench.

Protection of Topsoil

- The upper 6 inches of topsoil (if available) will be stripped following vegetation and site clearing. Topsoil will not be mixed with the underlying subsoil horizons and will be stockpiled as a berm along the perimeter of the wellpad within the construction zone, separate from subsoil or other excavated material.
- Topsoil and sub-surface soils will be replaced in the proper order, prior to final seedbed preparation. Spreading shall not be done when the ground or topsoil is wet. Vehicle/equipment traffic will not be allowed to cross topsoil stockpiles. If topsoil is stored for a length of time such that nutrients are depleted from the topsoil, amendments will be added to the topsoil as advised by the WPX environmental scientist or appropriate agent/contractor.

Protection of the Public

- The hauling of equipment and materials on public roads would comply with Department of Transportation regulations. No toxic substances would be stored or used within the proposed project area. WPX would have inspectors present during construction. Any accidents involving persons or property would immediately be reported to the BLM-FFO. WPX would notify the public of potential hazards by posting signage, as necessary.

Prevention and Control of Weeds

- Prior to construction equipment entering the proposed project area, construction equipment would be inspected for noxious weeds and cleaned.
- It would be WPX's responsibility to monitor, control, and eradicate all invasive, non-native plant species within the proposed project area throughout the life of the project. WPX's weed-control contractor would contact the BLM-FFO regarding acceptable weed-control methods. WPX would be required to submit a current Pesticide Use Proposal for the location prior to any pesticide application. WPX's weed-control contractor must carry a current pesticide applicator' license and only use pesticides authorized for use on BLM lands. The use of pesticides would comply with federal and state laws, and used in accordance with their registered use and limitations. WPX's weed-control contractor would contact the BLM-FFO prior to using these chemicals.

Protection of Air Resources

- BMPs for dust suppression would be utilized within the proposed project area to reduce fugitive dust during the construction phase of the proposed project. Water application, using a rear-spraying truck or other suitable means, would be the primary method of dust suppression within the proposed project area. Any additional dust-suppression practices would include the BLM-standard BMPs found in the Gold Book (BLM and USFS 2007) and the BMPs outlined in the stipulations attached to the approved ROW Grants.

Additional Design Features and BMPs

- Vehicles would be restricted to existing areas of surface disturbance, such as existing roads and well pads.
- Worker safety incidents would be reported to the BLM-FFO as required under Notice to Lessees (NTL) - 3A (USGS 1979). WPX would adhere to company safety policies, Occupational Safety and Health Administration regulations, and Department of Transportation regulations.
- WPX would comply with Onshore Oil and Gas Order No. 2, issued under Onshore Oil and Gas Operations (43 CFR 3160).
- Construction and maintenance activities would cease when soil or road surfaces become saturated to the extent that construction equipment is unable to stay within the existing access road corridor and/or when activities would cause irreparable harm to roads, soils, or streams.
- Erosion-control features, such as waterbars along the proposed pipeline corridor, would be applied as specified by the BLM-FFO Authorized Officer. If waterbars are constructed, the spacing requirements by hillslope grade are provided in Table 1, below. The waterbars would follow the horizontal contour of the hillslope on which they would be placed.

Table 2. Waterbar Spacing Requirements by Percent Grade of Hillslope

Hillslope Percent Grade (%)	Waterbar Spacing (feet)
Less than 1	400
1-5	300
5-15	300
15-25	100

Proposed Project Phases

Under the Proposed Action, the following phases would occur.

Construction and Installation of Pipelines

The BLM-FFO would be notified at least 48 hours prior to the start of construction. The proposed pipelines would be in operation year-round; however, the volume of commodity is not known at this time. Approximately 3 to 6 weeks of construction would be required to construct and install the proposed pipelines. Prior to construction commencement, WPX would notify the BLM-FFO of additional types of construction equipment to be used.

Within the proposed pipeline route, all vegetation would be cleared and the top 6 inches of topsoil (if available) would be salvaged and stockpiled. Vegetation removed during construction, including slash/brush and trees 3 inches and greater in diameter would be chipped or mulched and incorporated into the topsoil as additional organic matter.

WPX would install proposed pipelines for W Lybrook Trunk 1 pipeline corridor in two trenches approximately 5 feet apart within a granted 40-foot-wide pipeline corridor. Trenching activity would be conducted using a trencher or backhoe. The trench would generally be 4 to 5 feet in depth and approximately 6 feet beneath drainage crossings. The trench would be 16 inches in width if a trencher is used or 24 inches in width if a backhoe is used.

Soft plugs would be placed within the trench every quarter mile. When stringing pipeline, one joint of pipeline would be set back every quarter mile. After a pipeline segment has been welded and coated, a side-boom tractor would be used to place the pipeline into the trench.

After the proposed pipelines have been installed, the soils excavated from the trench would be returned and compacted to prevent subsidence. The trench would be compacted after approximately 2 feet of fill is placed within the trench and after the ground surface has been leveled.

Prior to the proposed pipelines being placed in service, the pipes would be pressure tested.

Pipeline markers would be installed along the proposed pipeline corridor within the line of sight, without voiding safety measures. Within 90 days of installation, aboveground structures not subject to safety requirements would be painted Juniper Green to blend with the surrounding landscape and reduce visual resource impacts.

Sediment- and/or erosion-control features would be installed, as necessary. Additional resource protection design features and mitigation associated with construction are listed above, in "Design Features and Best Management Practices".

Interim Reclamation

Following construction, interim reclamation would occur within all disturbance areas associated with the proposed project. The BLM-FFO would be notified at least 48 hours prior to surface reclamation activities.

During this phase, a bulldozer and a tractor with seeding capabilities would be used for reclamation purposes. Approximately four personnel would be required to conduct interim reclamation.

The entire pipeline corridor would be reclaimed. Slopes would be re-contoured to pre-construction topographical contours, if possible. Additionally, stockpiled topsoil would be redistributed and the surface would be ripped and seeded.

Details of the interim reclamation process (including species included in the seed mixtures) are provided in the Surface Reclamation Plan (Appendix D).

Operation

During the operation phase of the proposed project, WPX personnel would perform routine or emergency maintenance on the proposed pipelines and associated facilities.

Final Reclamation and Abandonment

Once the pipelines are no longer necessary and would not be expected to be utilized in the foreseeable future, they would be abandoned. Relinquishment of the ROW Grants would be carried out under current BLM regulations.

Final reclamation would occur within any portion of the project area (such as locations of aboveground structures) that would be disturbed to bare soil during the abandonment phase of the proposed project, if these areas meet the acreage requirements for reclamation. These acreage requirements are summarized below:

If final abandonment activities would disturb less than or equal to 0.1 acre to bare soil, the area(s) would be expected to revegetate naturally (no reclamation or monitoring activities will be required).

If final abandonment activities would disturb more than 0.1 acre to bare soil, final abandonment reclamation activities would be the same as described for interim reclamation (discussed in the Surface Reclamation Plan).

2.2.3. Surface Disturbance

The proposed project would result in a total of 2.33 acres of new disturbance; . Approximately 0.78 acres would overlap WFS' Lateral H-30 pipeline ROW that has been approved but not yet constructed. The proposed pipeline route was selected with respect to archeology, paleontology, geology, terrain characteristics, current/proposed WPX infrastructure, the approved Lateral H-30 pipeline ROW, and in an effort to minimize ground/vegetative disturbance. Although the H-30 pipeline has been approved, this pipeline is not likely to be constructed in near future. The purpose of the H-30 pipeline is to transport minerals from two or more proposed wells. These wells are not scheduled to be drilled due to economics.

W Lybrook Trunk 1

The proposed W Lybrook Trunk No. 1 pipeline would be 2,685 feet long within a 40-foot wide ROW. Approximately 158.8 feet would overlap the proposed W Lybrook UT Nos. 701H & 702H well pad from the edge of the well pad, to the well flags. Approximately 61 feet of pipeline would overlap the construction zone. Approximately 1,111.5 feet of pipeline would run cross country to the top of a mesa where it would meet up with the approved (not built) Lateral H-30 pipeline. The remaining 1,353.7 feet has been aligned parallel to the approved pipeline to the tie-in location on the existing Chaco Trunk No. 2. Construction activity for the pipeline installation would result in a total of 2.33 acres of new surface disturbance. All disturbance would be fully reclaimed during interim reclamation.

Temporary Use Areas (TUAs)

TUA's are areas where ground disturbance would take place because additional surface area outside the Right of Way (ROW) is needed to accommodate construction activity. One TUA would be utilized along the W Lybrook Trunk No. 1 pipeline for the segregation and storage of black clay soils. These segregated soil horizons would be returned as practicable to pre-disturbance conditions. This TUA would be 100-feet long from STA 19+38.7 to STA 20+38.7 and would be 25-feet wide on the north side of the ROW. The TUA would be fully reclaimed upon completion of pipeline installation.

Table 3. Surface Disturbance Calculations Associated with The Proposed Project.

Feature	Existing/Previously Permitted Surface Disturbance	New Surface Disturbance
Trunk Pipeline		
W Lybrook Trunk No. 1		1,111.5' long X 40' wide ROW ¹ (1.02 acres)
W Lybrook Trunk No. 1 parallel to approved/not built WFS H-30	1,353.7' long X 25' wide ROW ¹ (0.78 acres)	1,353.7' long X 15' wide ROW ¹ (0.47 acres)

Feature	Existing/Previously Permitted Surface Disturbance	New Surface Disturbance
pipeline		1,353.7' long X 40' wide ROW (1.24 acres of new surface disturbance)
Proposed W Lybrook UT Nos. 701H & 702H well pad and CZ	219.8ft X 40' wide ROW (0.20 acres)	
Temporary Use Area (TUA)		
TUA #1 Along W Lybrook Trunk No. 1	-	100' long x 25' wide (0.06 acre)
Total Surface Disturbance:	0.98 acres	2.33
¹ Total length of the pipeline is 2,685-feet; however, 158.8-feet of disturbance would overlap the proposed W Lybrook UT Nos. 701H & 702H well pad and 61 feet would overlap the W Lybrook UT Nos. 701H & 702H edge of disturbance. Disturbance calculations for these segments of pipeline are accounted for in the BSR for WPX Energy Production, LLC's Proposed W Lybrook UT Nos. 701H, 702H, 703H, 704H, 743H, & 744H Oil and Natural Gas Wells Project.		

Table 4. Project Disturbance Estimates for the Proposed W Lybrook Trunk No. 1

Feature	Acreage		Description of Acreage Following Post-Construction Reclamation		
	Total New Disturbance (acres)	New/Not Previously Permitted Disturbance (acres)	Fully Reclaimed (Reseeded and Recontoured) (acres)	Reseed Only (acres)	Long-term Disturbance (acres)
W Lybrook Trunk No. 1					
Trunk No. 1	2.27	1.49	2.27	-	-
TUA #1	0.06	0.06	0.06	-	-
Total	2.33	1.55	2.33	-	-
¹ Total length of the pipeline is 2,685-feet; however, 158.8-feet of disturbance would overlap the proposed W Lybrook UT Nos. 701H & 702H well pad and 61 feet would overlap the W Lybrook UT Nos. 701H & 702H edge of disturbance. Disturbance calculations for these segments of pipeline are accounted for in the BSR for WPX Energy Production, LLC's Proposed W Lybrook UT Nos. 701H, 702H, 703H, 704H, 743H, & 744H Oil and Natural Gas Wells Project.					

2.3. Alternative C: Alternative Route

The Alternative C action is the BLM-FFO approval of the ROW Grants associated with an alternative route for the W Lybrook Trunk 1 pipeline. Alternative C would include the construction, operation, maintenance, and eventually, the final abandonment of one pipeline corridor. Alternative C would commence after the ROW Grants are issued.

Alternative C includes the installation of a 4,341-foot pipeline across public lands along existing transmission line and pipeline right of way. This pipeline would transport produced products off unit from oil and natural gas wells in the W Lybrook UT to the existing Chaco Trunk No. 2 gathering system. The Alternative C pipeline would be 4,341 feet long within a 40-foot wide ROW. Approximately 344 feet would overlap the proposed W Lybrook UT Nos. 701H & 702H well pad from the well flags to the edge of the construction zone. The pipeline would then take off south-southeast from the well pad and would parallel a transmission line for approximately 1,546 feet. The edge of pipeline ROW nearest to the transmission line would be offset from the transmission line 20 feet for safety reasons and would not overlap ground disturbance from the transmission line. However, an existing two-track road generally follows the transmission line, but occasionally deviates from it, such that the two-track road would overlap portions of the Alternative C ROW. This overlap was estimated to be approximately 0.14 acres. Once the Alternative

C pipeline reaches the top of the mesa it turns northeast joining an existing road. The pipeline would then travel north-northeast and would be placed adjacent to the existing road for approximately 2,451 feet to its tie-in location at the Chaco Trunk No. 2. The pipeline ROW would overlap the existing road disturbance for an approximate width of 15 feet. The Alternative C pipeline system will consist of two trenches. Each trench would contain a 10-inch steel natural gas/liquids line, 8-inch steel oil line and 6-inch gas/liquids line. In addition, a 6-inch poly water pipeline will be placed in either Trench 1 or 2.

2.3.1. Location of Proposed Project Area

Maps of Alternative C are provided in Appendix A. The Alternative C area is plotted on the Lybrook NW, New Mexico, 7.5-minute USGS quadrangles and the 2011 New Mexico Resource Geographic Information System Program aerial photograph.

The Alternative C pipeline would be located on public lands within the BLM-FFO management area of San Juan County, New Mexico. This trunk pipeline would be located east of WPX's established W Lybrook UT boundary; the line would connect the W Lybrook UT Nos. 701H & 702H proposed well-connect pipeline infrastructure to the Chaco Trunk No. 2. The tie-in location on the Chaco Trunk No. 2 would be the same as the proposed action and is located approximately 1.3 miles southeast of the intersection of County Road #7900 and U.S. Highway 550; 36.8 miles south-southeast of the town of Bloomfield, New Mexico; and 12.8 miles west-northwest of Counselor, New Mexico. Legal coordinates are shown in Table 1 below. The alternative route lies within the Escavada Wash watershed boundary.

The general region surrounding the alternative area is characterized by badlands, mesas, and relatively flat lowland valleys. There are many broad, braided, shallow washes in the area.

Legal land description of the alternative is provided in Table 5 below.

Table 5. Legal Land Description for the Alternative C Pipeline

Township, Range	Section	Quarter-Quarter	Project Feature
Township 23 North, Range 8 West	9	Southwest ¼ of the Southeast ¼	Alternative C Pipeline
Township 23 North, Range 8 West	9	South ½ of the Southwest ¼	Alternative C Pipeline
Township 23 North, Range 8 West	16	North ½ of the Northwest ¼	Alternative C Pipeline

2.3.2. Description of Proposed Project

Design features, BMPs and construction practices for the Alternative C action would be the same as described for the Proposed Action outlined in 2.2.2 with the following exceptions:

Construction and Installation of Pipelines

No TUA's would be needed along the Alternative C route.

Due to safety concerns associated with working in close proximity to a transmission line, additional measures will be taken to comply with the safety requirements of the utility company, pipeline construction company, and WPX's policies and procedures. The ROW will be a minimum of 20-foot offset of the transmission line. Overhead transmission line markers would be placed as required. Additional BMP's and safety measures will be implemented as necessary.

2.3.3. Surface Disturbance

The Alternative C pipeline would result in a total of 3.67 acres of disturbance; approximately 0.98 acres would overlap existing disturbance and 2.69 acres would occur as new disturbance. The proposed pipeline route was selected with respect to existing disturbance corridors in the area.

Alternative C

The Alternative C pipeline would be 4,341 feet long within a 40-foot wide ROW. Approximately 344 feet would overlap the proposed W Lybrook UT Nos. 701H & 702H well pad from the edge of the construction zone to the well flags. Approximately 1,546 feet of pipeline would parallel an existing transmission line. The remaining 2,451 feet would be placed adjacent to an existing road to its tie-in location at the Chaco Trunk No. 2. Construction activity for the pipeline installation would result in 2.98 acres of new surface disturbance. All disturbances would be fully reclaimed during interim reclamation.

Table 6. Surface Disturbance Calculations Associated with Alternative C Pipeline.

Feature	Existing/Previously Permitted Surface Disturbance	New Surface Disturbance
Alternative C Pipeline		
Alternative C Pipeline offset of Transmission Line	104' long X 15' wide of overlapping two-track road (0.14 acres)	1,546' long X 40' wide ROW ¹ (1.28 ²)
Alternative C Pipeline adjacent to the existing road	2,451' long X 15' wide (0.84 acres)	2,451' long X 25' wide (1.41 acres)
Total Surface Disturbance:	0.98 acres	2.69 acres
¹ Total length of the pipeline is 4,341-feet; however, 355 feet of disturbance would overlap the proposed W Lybrook UT Nos. 701H & 702H well pad and construction zone. Disturbance calculations for these segments of pipeline are accounted for in the BSR for WPX Energy Production, LLC's Proposed W Lybrook UT Nos. 701H, 702H, 703H, 704H, 743H, & 744H Oil and Natural Gas Wells Project. ² This acreage calculation is the total new surface disturbance of the pipeline parallel to the transmission line after the 0.14 acres of overlapping two-track has been deducted.		

Table 7. Project Disturbance Estimates for the Alternative C Pipeline

Feature	Acreage		Description of Acreage Following Post-Construction Reclamation		
	Total (acres)	New Disturbance (acres)	Fully Reclaimed (Reseeded and Recontoured) (acres)	Reseed Only (acres)	Long-term Disturbance (acres)
Alternative C Pipeline					
Alternative C Pipeline	3.67	2.69	3.67	-	-
Total	3.67	2.69	3.67	-	-
Total length of the pipeline is 4,341-feet; however, 355 feet of disturbance would overlap the proposed W Lybrook UT Nos. 701H & 702H well pad and construction zone. Disturbance calculations for these segments of pipeline are accounted for in the BSR for WPX Energy Production, LLC's Proposed W Lybrook UT Nos. 701H, 702H, 703H, 704H, 743H, & 744H Oil and Natural Gas Wells Project.					

2.4. Alternatives Considered but Eliminated from Detailed Study

The Proposed Action route was selected with respect to archeology, paleontology, Special Status Species potential habitat, terrain characteristics, current/proposed WPX infrastructure, the approved Lateral H-30 pipeline, and in an effort to minimize ground/vegetative disturbance. The original route

staked in the field during the November 18, 2016 onsite (Alternative I) was rerouted in sections along the mesa top to parallel WFS' approved Lateral H-30 as much as practicable in an effort to minimize pipeline crossings and consolidate pipeline ROW's in the area. Where the Proposed Action line drops off the mesa, the route was selected to minimize the scar visible from US Highway 550. The pipeline follows a SW aspect slope that would not be visible from the 44 Store or US Highway 550. A TUA was discussed and would be required at the toe of the slope to store the soil horizons so that the colored soil horizons could be put back after construction. The Proposed Action incorporates the discussed realigned sections and utilizes approximately 694 feet of the WFS' Lateral H-30 pipeline. Alternative I would have resulted in a total length of 2,586 feet and 99 feet less than the Proposed Action (Alternative B).

During the onsite two other alternatives were discussed. The first alternative (Alternative II) would be to follow the W Lybrook UT 701H access and well-connect pipeline to the proposed Energen well pad access road, at that point it would continue along the Energen access road and skirt around the eastern edge of the proposed Energen well pad. From the Energen well pad, it would parallel the WFS' approved Lateral H-30 ROW route. Alternative II would then parallel the Lateral H-30 to the tie-in location on the Chaco Trunk No. 2. The pipeline would have to go around the Energen pad and be far enough away from the well pad so the pipeline would not interfere with the interim reclamation. The pipeline would have to be situated away from the cut and fill slopes. Additionally, the area where the Lateral H-30 pipeline goes up the slope to the mesa top follows a 10-15-foot wide ridge up the slope. The ridge is not wide enough to place two pipelines 15 feet apart. The second pipeline would have to be built on a side slope which would cause a great deal of disturbance and would be directly visible to 44 Store and US Highway 550. This would result in a terraced slope, having to lay back the edges of the slope to provide a level working area for stockpiling soil or removing all soil from the area and then placing it back after the pipeline is constructed. Once on top of the mesa, the line is routed parallel to the Lateral H-30 for the remainder of its length. This alternative could have caused erosion in Brack's cactus habitat. Alternative II contained occupied Brack's hardwall cactus habitat in and around the Energen well pad, and was eliminated from consideration.

The second alternative discussed during the onsite was Alternative III. Alternative III looked at a route deviating south and around the black clay soils to avoid any palentology concerns in the event fossils were discovered through the section of black clay soils at the base of the mesa. This reroute would be a short segment immediately south of the proposed route. This alternative would cross several ephemeral drainages. It would result in disturbance to 0.48 acres of suitable habitat and the removal of approximately 24 individuals. Upon inspection of the black clay soils by the BLM-FFO paleontologist, it was concluded that there were no concerns with respect to paleontology along the proposed route. As such, Alternative III containing occupied Brack's hardwall cactus habitat, was eliminated from consideration.

Table 8. Comparison of Alternative Corridor Lengths Considered but Eliminated from Detailed Study

	Alternative I¹	Alternative II²	Alternative III²
Total Disturbance	2586 ft.	4523 ft.	2837 ft.
Completely New Disturbance	2378 ft.	0	1975 ft.
Existing/Approved Disturbance	169 ft.	4523 ft. (Approved but not existing)	862 ft.
Other Reasons for Elimination	Moved areas to parallel approved H-30	Both pipelines cannot be constructed within a section of confined area. Visible scar to 44 Store and Highway 550 Occupied Brack's habitat	Occupied Brack's habitat

¹ Measurements calculated using Surveyed Plats

² Measurements are a rough estimation from interpretations of alignments using Google Earth and disturbances shown on the aerial photography from 6/24/2014.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. Methodology

3.1.1. *Direct and Indirect Impacts*

This section describes the environment that would be affected by implementation of the alternatives described in Chapter 2. Aspects of the affected environment described in this chapter focus on the relevant major resources or issues. These items are included above in Section 1.6.2.

Under the No Action alternative, current land and resource issues within the proposed project area would continue; there would be no new impacts from oil and gas development. The No Action alternative will serve as the baseline for comparing the environmental impacts of the analyzed alternatives, and will not be further evaluated in this EA (BLM 2008b).

For the purposes of this analysis, the proposed project area is considered the area where surface disturbance would occur, that is the pipeline corridor and associated TUA. Impacts to the action area are based on predicted trends and typical current land uses. Impacts are defined as either being direct or indirect. The existing environments within the action area are described in detail for each resource in the following sections. Potential environmental effects are identified and evaluated for level of impact, as well as, magnitude with respect to the temporal span. Short-term impacts are defined as those affecting the environment for a limited period, usually less than 5 years, and then the environment reverts back to pre-action conditions. Long-term impacts are impacts lasted more than 5 years and may even result in permanent alterations to the pre-existing environment.

Impacts were analyzed assuming Design Features and Best Management Practices listed in Section 2.2.2 and 2.3.2 are implemented to mitigate impacts. The analysis area will be a defined area with either a natural or human delineated boundary and is specified for each issue in the sections below.

3.1.2. *Cumulative Impacts*

The proposed W Lybrook Trunk 1 pipeline will act as a gas gathering line for WPX's proposed future wells within the W Lybrook UT. Future wells in the north part of the unit will connect to the Chaco Trunk 2 pipeline infrastructure. The proposed W Lybrook UT will encompass approximately 12,800 acres total (6,233 acres BLM Surface, 6,567 acres Tribal Surface). Proposed development includes 55 horizontal wells, 13 well pads (2-6 wells/pad), approximately 9.88 miles of new or upgraded access roads, and about 19.32 miles of new pipeline infrastructure. The expected timeframe of development for the W Lybrook UT is 2 to 4 years.

A Reasonably Foreseeable Development scenario (RFD) was prepared for the FFO in October 2014 (Engler, et al., 2014). The RFD identified high, moderate, and low potential regions for oil development of the Mancos-Gallup Formation. Within the high potential region, full development would include 5 wells per section, resulting in 1,600 completions. Within the moderate potential region, full development would include one well per section, resulting in 330 completions. Within the low potential region, full development would include one well per township, resulting in 30 well completions. Additionally, the RFD predicted 2,000 gas wells could be development in the northeastern corner of the FFO.

The following methods and assumptions were used to predict the potential impact of the development predicted in the RFD.

Past Oil and Gas Development

Past oil and gas wells were identified using Ongard. Following interim reclamation, the average wellpad size for past development is 0.75 acres per wellpad.

Present and Future Oil Development

Based on previous development, it was assumed that development of the high potential region would involve the twinning of wellpads. This is the placement of two or more wells on one wellpad. The assumption for the analysis is that the development of a section would include two twinned wellpads and one single wellpad, resulting in three wellpads for five wells. In the moderate and low potential regions, it was assumed that development would involve single wellpads. The proposed action is located in the high potential region.

The average wellpad size for a twinned wellpad was assumed to be 500 feet by 530 feet, or 6.08 acres. An additional 0.6 acres was added to account for any associated road or pipeline development, resulting in 6.68 acres of short-term disturbance. Following completion of the well, interim reclamation of the wellpad and reclamation of any pipelines would occur, resulting in 1.5 acres of long-term disturbance.

The average wellpad size for a single wellpad was assumed to be 500 feet by 500 feet, or 5.74 acres. Again, an additional 0.6 acres was added to account for associated road or pipeline development, resulting in 6.34 acres of short-term disturbance. Following completion of the well, interim reclamation of the wellpad and reclamation of any pipelines would occur, resulting in 1.5 acres of long-term disturbance.

The Random Point Tool in ArcMap was used to randomly assign points representing wellpads and associated disturbance based on the RFD assumptions: five wells per section in the high potential region, one well per section in the moderate potential region, and one well per township in the low potential region. This allowed both long-term and short-term disturbance from oil development of the Mancos-Gallup Formation to be calculated for the analysis areas used in this EA.

Present and Future Gas Development

The RFD predicted 2,000 wells could be developed in the gas prone area. The average wellpad size was assumed to be 555 feet by 410 feet, or 5.22 acres. An additional 0.6 acres of disturbance was added to account for associated roads and pipelines, resulting in total disturbance of 5.82 acres. Following completion of the well, interim reclamation of the wellpad and reclamation of any pipelines would occur, resulting in 1.5 acres of long-term disturbance.

The Random Point Tool in ArcMap was used to randomly assign points representing one wellpad and associated disturbance. This allowed both long-term and short-term disturbance from gas development in the northeastern corner of the FFO to be calculated for the analysis areas used in this EA.

3.2. Air Resources

3.2.1. *Affected Environment*

The proposed project is located in San Juan County, New Mexico. Additional general information on air quality in the area is contained in Chapter 3 of the Farmington PRMP/FEIS. In addition, new information about greenhouse gases (GHGs) and their effects on national and global climate conditions has emerged since this document was prepared. On-going scientific research has identified the potential impacts of GHG emissions such as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), water vapor, and several trace gases on global climate. Through complex interactions on a global scale, GHG emissions may cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), industrialization and burning of fossil carbon sources have caused GHG concentrations to increase measurably, and may contribute to overall climatic changes, typically referred to as global warming.

Much of the information referenced in this section is incorporated from the Air Resources Technical Report for BLM Oil and Gas Development in New Mexico, Kansas, Oklahoma, and Texas (herein referred to as Air Resources Technical Report) (U.S. Department of Interior Bureau of Land Management, 2014). This document summarizes the technical information related to air resources and climate change associated with oil and gas development and the methodology and assumptions used for analysis.

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including six nationally regulated ambient air pollutants (criteria pollutants). These criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), sulfur dioxide (SO₂) and lead (Pb). EPA has established National Ambient Air Quality Standards (NAAQS) for criteria air pollutants. The NAAQS are protective of human health and the environment. EPA has approved New Mexico's State Implementation Plan and the state enforces state and federal air quality regulations on all public and private lands within the state, except for tribal lands and within Bernalillo County. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility. Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. EPA has proposed or completed actions recently to implement Clean Air Act requirements for greenhouse gas emissions. Climate has the potential to influence renewable and non-renewable resource management.

Air Quality

The Air Resources Technical Report describes the types of data used for description of the existing conditions of criteria pollutants, how the criteria pollutants are related to the activities involved in oil and gas development, and provides a table of current National and state standards. EPA's Green Book web page (U.S. Environmental Protection Agency, 2013) reports that all counties in the Farmington Field Office area are in attainment of all National Ambient Air Quality Standards (NAAQS) as defined by the Clean Air Act. The area is also in attainment of all state air quality standards (NMAAQS). The current status of criteria pollutant levels in the Farmington Field Office are described below.

"Design Values" are the concentrations of air pollution at a specific monitoring site that can be compared to the NAAQS. The 2012 design values for criteria pollutants are listed below in Table 9. There is no monitoring for CO and lead in San Juan County, but because the county is relatively rural, it is likely that these pollutants are not elevated. PM10 design concentrations are not available for San Juan County.

Table 9. Criteria Pollutant Monitored Design Values in San Juan County

Pollutant	2012 Design Concentration	Averaging Time	NAAQS	NMAAQS
O ₃	0.071 ppm	8-hour	0.075 ppm ¹	
NO ₂	13 ppb	Annual	53 ppb ²	50 ppb
NO ₂	38 ppb	1-hour	100 ppb ³	
PM _{2.5}	4.7 µg/m ³	Annual	12 µg/m ^{3,4}	60 µg/m ^{3,6}
PM _{2.5}	14 µg/m ³	24 hour	35 µg/m ^{3,3}	150 µg/m ^{3,6}
SO ₂	19 ppb	1-hour	75 ppb ⁵	
Source: U.S. Environmental Protection Agency, 2014				
¹ Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years				
² Not to be exceeded during the year				
³ 98th percentile, averaged over 3 years				
⁴ Annual mean, averaged over 3 years				
⁵ 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years				
⁶ The NMAAQS is for Total Suspended Particulate (TSP)				

In 2005, the EPA estimates that there was less than 0.01 ton per square mile of lead emitted in FFO counties, which is less than 2 tons total (U.S. Environmental Protection Agency, 2012). Lead emissions are not an issue in this area, and will not be discussed further.

Air quality in a given region can be measured by its Air Quality Index value. The air quality index (AQI) is reported according to a 500-point scale for each of the major criteria air pollutants, with the worst denominator determining the ranking. For example, if an area has a CO value of 132 on a given day and all other pollutants are below 50, the AQI for that day would be 132. The AQI scale breaks down into six categories: good (AQI<50), moderate (50-100), unhealthy for sensitive groups (100-150), unhealthy (>150), very unhealthy and hazardous. The AQI is a national index, the air quality rating and the associated level of health concern is the same everywhere in the country. The AQI is an important indicator for populations sensitive to air quality changes.

Mean AQI values for San Juan County were generally in the good range (AQI<50) in 2013 with 80% of the days in that range. The median AQI in 2013 was 42, which indicates “good” air quality. The maximum AQI in 2013 was 156, which is “unhealthy.”

Although the AQI in the region has reached the level considered unhealthy for sensitive groups on several days almost every year in the last decade, there are no patterns or trends to the occurrences (**Error! Reference source not found.**). On 8 days in the past decade, air quality has reached the level of “unhealthy” and on two days, air quality reached the level of “very unhealthy”. In 2009 and 2012, there were no days that were “unhealthy for sensitive groups” or worse in air quality. In 2005 and 2013, there was one day that was “unhealthy” during each year. In 2010, there were five “unhealthy” days and two “very unhealthy days.”

Table 10. Number of Days classified as “unhealthy for sensitive groups” (AQI 101-150) or worse

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Days	3	6	9	18	1	0	12	9	0	1

Source: U.S. Environmental Protection Agency, 2013a

Hazardous Air Pollutants

The Air Resources Technical Report discusses the relevance of hazardous air pollutants (HAPs) to oil and gas development and the particular HAPs that are regulated in relation to these activities (U.S. Department of Interior Bureau of Land Management, 2014). The EPA conducts a periodic National Air Toxics Assessment (NATA) that quantifies HAP emissions by county in the U.S. The purpose of the NATA is to identify areas where HAP emissions result in high health risks and further emissions reduction strategies are necessary. A review of the results of the 2005 NATA shows that cancer, neurological and respiratory risks in San Juan County are generally lower than statewide and national levels as well as those for Bernalillo County where urban sources are concentrated in the Albuquerque area (U.S. Environmental Protection Agency, 2012).

Climate

The planning area is located in a semiarid climate regime typified by dry windy conditions and limited rainfall. Summer maximum temperatures are generally in the 80s or 90s (Fahrenheit) and winter minimum temperatures are generally in the teens to 20s. Temperatures occasionally reach above 100 degrees Fahrenheit in June and July and have dipped below zero in December and January. Precipitation is divided between summer thunderstorms associated with the Southwest Monsoon and winter snowfall as Pacific weather systems drop south into New Mexico. Table 11 shows climate normals for the 30-year period from 1981 to 2010 for the Farmington, New Mexico, area.

Table 11. Climate Normals for the Farmington Area, 1981-2010

Month	Average Temperature (°F ⁽¹⁾)	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Precipitation (inches)
January	30.5	40.8	20.3	0.53
February	35.8	46.8	24.8	0.59

March	43.2	56.1	30.3	0.78
April	50.4	64.7	36.2	0.65
May	60.4	74.8	46.1	0.54
June	69.8	85.1	54.5	0.21
July	75.4	89.6	61.2	0.90
August	73.2	86.5	59.8	1.26
September	65.4	79.1	51.7	1.04
October	53.3	66.4	40.1	0.91
November	40.5	52.2	28.8	0.68
December	31.0	41.2	20.7	0.50
Source: data collected at New Mexico State Agricultural Science Center - Farmington (¹) degrees Fahrenheit				

Very recently, pioneering research using space-borne (satellite and aircraft) determination of methane concentrations have indicated anomalously large methane concentrations may occur in the Four Corners region (Kort, Frankenberg, Costigan, Lindenmaier, Dubey, & Wunch, 2014). A subsequent study (Schneising, Burrows, Dickerson, Buchwitz, Reuter, & Bovensmann, 2014) indicated larger anomalies over other oil and gas basins in the U.S. Methane is 34 times more potent at trapping greenhouse gas emissions than CO₂ when considering a time horizon of 100 years (Intergovernmental Panel on Climate Change, 2013). While space-borne studies can determine the pollutant concentration in a column of air, these studies cannot pinpoint the specific sources of air pollution. Further study is required to determine the sources responsible for methane concentrations in the Four Corners region; however, it is known that a significant amount of methane is emitted during oil and gas well completion (Howarth, Santoro, & A.Ingraffea, 2011). Methane is also emitted from process equipment, such as pneumatic controllers and liquids unloading, at oil and gas production sites. Ground-based, direct source monitoring of pneumatic controllers conducted by the Center for Energy and Environmental Resources (Allen, et al., 2014) show that methane emissions from controllers exhibit a wide range of emissions and a small subset of pneumatic controllers emitted more methane than most. Emissions measured in the study varied significantly by region of the U.S., the application of the controller and whether the controller was continuous or intermittently venting. The Center for Energy and Environmental Resources had similar findings of variability of methane emissions from liquid unloading (Allen, et al., 2014a). In October 2012, USEPA promulgated air quality regulations controlling VOC emissions at gas wells. These rules require air pollution mitigation measures that reduce the emissions of volatile organic compounds. These same mitigation measures have a co-benefit of reducing methane emissions. Future ground-based and space-borne studies planned in the Four Corners region with emerging pollutant measurement technology may help to pinpoint significant, specific sources of methane emissions in the region.

The Air Resources Technical Report summarizes information about greenhouse gas emissions from oil and gas development and their effects on national and global climate conditions. While it is difficult to determine the spatial and temporal variability and change of climatic conditions; what is known is that increasing concentrations of GHGs are likely to accelerate the rate of climate change.

3.2.2. Impacts from Alternative B: Proposed Action

Direct and Indirect Impacts

Air quality would temporarily be directly impacted with pollution from exhaust emissions and dust. Air pollution from the motorized equipment and dust dissemination would discontinue at the completion of the project. Other factors that currently affect air quality in the area include dust from livestock herding activities, dust from recreational use, dust from use of roads for vehicular traffic, and emissions from oil and gas production activities. Impacts to air quality attributable to this project would be minor and short-term.

Cumulative Impacts

The primary activities that contribute to levels of air pollutant and GHG emissions in the Four Corners area are electricity generation stations, fossil fuel industries, and vehicle travel. The Air Quality Technical Report includes a description of the varied sources of national and regional emissions that are incorporated here to represent the past, present, and reasonably foreseeable impacts to air resources (U.S. Department of Interior Bureau of Land Management, 2014). It includes a summary of emissions on the national and regional scale by industry source. Sources that are considered to have notable contributions to air quality impacts and GHG emissions include electrical generating units, fossil fuel production (nationally and regionally), and transportation.

The proposed project could result in a very small direct and indirect increase in several criteria pollutants, HAPs, and GHGs as a result the short term construction activity. The very small increase in emissions from short term construction activity would not be expected to result in exceeding the NAAQS for any criteria pollutants in the analysis area.

The very small increase in GHG emissions that could result from implementing the proposed alternative would not produce climate change impacts that differ from the No Action Alternative. This is because climate change is a global process that is impacted by the sum total of GHGs in the Earth's atmosphere. The incremental contribution to global GHGs from the action alternatives cannot be translated into effects on climate change globally or in the area of this site-specific action. It is currently not feasible to predict with certainty the net impacts from the action alternatives on global or regional climate.

The Air Resources Technical Report (U.S. Department of Interior Bureau of Land Management, 2014) discusses the relationship of past, present, and future predicted emissions to climate change and the limitations in predicting local and regional impacts related to emissions. It is currently not feasible to know with certainty the net impacts from particular emissions associated with activities on public lands.

3.2.3. *Impacts from Alternative C: Alternative Route*

Direct and Indirect Impacts

Direct and indirect impacts for the Alternative C Action would be the same as described above for the Proposed Action.

Cumulative Impacts

Cumulative impacts for the Alternative C Action would be the same as described above for the Proposed Action.

3.3. Upland Vegetation

3.3.1. *Affected Environment*

The analysis area for impacts to upland vegetation is the Escavada Wash watershed. The Escavada Wash watershed lies within the larger Arizona/New Mexico Plateau ecological region. This ecological region occurs primarily in Arizona, Colorado, and New Mexico; a small portion is located within Nevada. This ecological region encompasses approximately 45,870,500 acres (185,632 square kilometers), and the elevation ranges from 2,165 to 11,949 feet AMSL. The ecological region's landscapes include low mountains, hills, mesas, foothills, irregular plains, alkaline basins, some sand dunes, and wetlands. This ecological region is a large transitional region between the semiarid grasslands to the east; the drier shrublands and woodlands to the north; and the lower, hotter, less-vegetated areas to the west and south. Vegetation communities include shrublands with big sagebrush (*Artemisia tridentata*), rabbitbrush (*Ericameria nauseosa*), winterfat (*Krascheninnikovia lanata*), shadscale saltbush (*Atriplex confertifolia*), and greasewood (*Sarcobatus vermiculatus*); and grasslands of blue grama (*Bouteloua gracilis*), western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassella viridula*), and needleandthread grass (*Hesperostipa comata*). Higher elevations may support piñon pine and juniper woodlands. This ecological region includes the urban areas of Santa Fe and Albuquerque, New Mexico. Important land uses within

this ecological region include irrigated farming, recreation, rangeland, wildlife habitat, and some natural gas production (Griffith, et al. 2006).

The Escavada Wash watershed encompasses approximately 147,176 acres with landscapes including hills, mesas, alkaline basins, and badlands. Vegetation communities mentioned above include shrublands dominated by big sagebrush (*Artemisia tridentata*), piñon-juniper woodlands along higher elevations, and sparsely vegetated badlands along the foothills and gullies.

3.3.2. Impacts from Alternative B: Proposed Action

The proposed action area vegetation cover is classified as sagebrush grassland and badlands. There are approximately 11 juniper trees and 2 piñon trees within the corridor of the pipeline ROW. The dominant species throughout the entire project area is big sagebrush. Percent ground cover by dominant species for the W Lybrook Trunk No. 1 pipeline ROW was visually estimated to be approximately 30 percent. No New Mexico Department of Agriculture (NMDA) Class A- listed species were found; however, halogeton (*Halogeton glomeratus*) a NMDA Class B- listed species was found within the action area.

Direct and Indirect Impacts

Within the proposed pipeline corridor, vegetation will be brush-hogged and vegetation cleared where needed along the proposed trench route within the proposed corridor. The proposed project would result in the direct removal of 2.33 acres maximum of sagebrush shrubland and badland community vegetation. The Proposed Action would result in the removal of approximately 13 juniper and piñon trees. Vegetation removed during construction, including slash/brush and trees 3 inches and greater in diameter, would be chipped or mulched and incorporated into the topsoil as additional organic matter.

During reclamation, the appropriate BLM-approved seed mixture would be utilized. The species included in this mixture are listed in the Surface Reclamation Plan (Appendix D). Reestablished vegetation would consist of native grass, forb, and shrub species included in the seed mixture, as well as native species that are not deliberately planted. It is also possible that invasive, nonnative species could become established within the proposed action area, as such, species could be transported by project equipment and tend to thrive in disturbed areas. Following the interim reclamation process, the resulting vegetation communities could differ from the native plant communities surrounding the proposed action area. Within reclaimed areas, it is not expected that the vegetation communities would return to native conditions within 20 years (BLM 2003a, 4-18).

The deposition of fugitive dust generated during vegetation-clearing activities and during wind events could reduce photosynthesis and productivity of the surrounding vegetation (Thompson, et al. 1984; Hirano, et al. 1995), increase water loss in plants near the proposed project area (Eveling and Bataille 1984), and result in injury to leaves of surrounding vegetation.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the Escavada Wash watershed, which may impact vegetative cover, growth, and change in species resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Community development
- Livestock grazing
- Vegetation management

One hundred and five (105) oil and gas wells have been developed in the Escavada Wash watershed. These wells have resulted in a long-term disturbance of about 79 acres of surface disturbance. Based on the 326 potential wells assumed in the RFD (Engler, et al., 2014), oil and gas development in the Escavada Wash watershed may result in about 2,116 acres of short-term disturbance from potential

future development, with approximately 1,627 acres of that being reclaimed. This results in about 490 acres of long-term surface disturbance from potential future oil and gas development in the Escavada Wash watershed. The total long-term disturbance for existing and potential oil and gas development in the Escavada Wash watershed would be approximately 568 acres. This disturbance would have the same impacts as described for direct and indirect impacts. The Proposed Action would contribute 2.33 acres of total short-term disturbance and would be part of the 1,627 acres that is reclaimed. Vegetation would become reestablished in these areas, but may result in a slight change in the community. These changes would be cumulative to impacts from the total 2,116 acres.

Indirectly, fugitive dust or deposition and introduction of invasive species associated with existing roads, and wellpads in the immediate area could impact the vegetation within the spatial analysis area, and could continue to do so throughout the life of the proposed project. The proposed project would contribute to direct vegetation disturbance and fugitive dust and/or deposition.

Community development in the area is currently minimal and it is not expected to greatly increase in the reasonably foreseeable future based on the area's current infrastructure and rate of development. As housing and access roads are constructed and/or removed, vegetative cover and communities may be altered. Livestock grazing and level of intensity may also impact cover and species composition in the analysis area. Livestock grazing is closely managed by both land owners and land management agencies. Overstocking areas can greatly influence vegetative growth and vigor, and result in changes in communities if not appropriately managed, particularly during drought years. Livestock grazing is expected to continue at the same rate and in the same manner as it currently occurs. As such, impacts would be similar to those currently experienced and would not likely increase beyond the current state. Vegetation manipulation and management activities, such as sagebrush clearing and prescribed fires, impact vegetation and are often implemented by land managers. These activities are likely to occur at varying levels in the analysis area in the future, however, with a mixture of land ownership it is not possible to predict when and to what extent with any certainty. All these land uses are likely to contribute a minor component in impacts to vegetation.

3.3.3. *Impacts from Alternative C: Alternative Route*

The Alternative C action area vegetation cover is classified as sagebrush grassland and badlands. There are approximately 43 juniper and piñon trees within the corridor of the pipeline ROW. The dominant species throughout the entire project area is big sagebrush. Percent ground cover by dominant species for the W Lybrook Trunk No. 1 pipeline ROW was visually estimated to be approximately 30 percent. No New Mexico Department of Agriculture (NMDA) Class A- listed species were found; however, halogeton (*Halogeton glomeratus*) a NMDA Class B- listed species was found within the action area.

Direct and Indirect Impacts

Within the Alternative C pipeline corridor, vegetation will be brush-hogged and vegetation cleared where needed along the Alternative C trench route within the corridor. Alternative C would result in 3.67 acres of disturbance within sagebrush and badland vegetation communities, 2.69 acres of this would occur as new disturbance. Alternative C would result in the removal of approximately 43 piñon and juniper trees.. Alternative C would remove 30 more trees than Alternative B. Vegetation removed during construction, including slash/brush and trees 3 inches and greater in diameter, would be chipped or mulched and incorporated into the topsoil as additional organic matter.

During reclamation, the appropriate BLM-approved seed mixture would be utilized. The species included in this mixture are listed in the Surface Reclamation Plan (Appendix D). Reestablished vegetation would consist of native grass, forb, and shrub species included in the seed mixture, as well as native species that are not deliberately planted. It is also possible that invasive, nonnative species could become established within the Alternative C action area, as such, species could be transported by project equipment and tend to thrive in disturbed areas. Following the interim reclamation process, the resulting vegetation communities could differ from the native plant communities surrounding the Alternative C project area. Within reclaimed areas, it is not expected that the vegetation communities would return to native conditions within 20 years (BLM 2003a, 4-18).

The deposition of fugitive dust generated during vegetation-clearing activities and during wind events could reduce photosynthesis and productivity of the surrounding vegetation (Thompson, et al. 1984; Hirano, et al. 1995), increase water loss in plants near the Alternative C action area (Eveling and Bataille 1984), and result in injury to leaves of surrounding vegetation.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the Escavada Wash watershed, which may impact vegetative cover, growth, and change in species resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Community development
- Livestock grazing
- Vegetation management

One hundred and five (105) oil and gas wells have been developed in the Escavada Wash watershed. These wells have resulted in a long-term disturbance of about 79 acres of surface disturbance. Based on the 326 potential wells assumed in the RFD (Engler, et al., 2014), oil and gas development in the Escavada Wash watershed may result in about 2,116 acres of short-term disturbance from potential future development, with approximately 1,627 acres of that being reclaimed. This results in about 490 acres of long-term surface disturbance from potential future oil and gas development in the Escavada Wash watershed. The total long-term disturbance for existing and potential oil and gas development in the Escavada Wash watershed would be approximately 568 acres. This disturbance would have the same impacts as described for direct and indirect impacts. The Alternative C Action would contribute 3.67 acres of short-term disturbance and would be part of the 1,627 acres that is reclaimed. Vegetation would become reestablished in these areas, but may result in a slight change in the community. These changes would be cumulative to impacts from the total 2,116 acres.

Indirectly, fugitive dust or deposition and introduction of invasive species associated with existing roads, and wellpads in the immediate area could impact the vegetation within the spatial analysis area, and could continue to do so throughout the life of the Alternative C project. The Alternative C project would contribute to direct vegetation disturbance and fugitive dust and/or deposition.

Community development in the area is currently minimal and it is not expected to greatly increase in the reasonably foreseeable future based on the area's current infrastructure and rate of development. As housing and access roads are constructed and/or removed, vegetative cover and communities may be altered. Livestock grazing and level of intensity may also impact cover and species composition in the analysis area. Livestock grazing is closely managed by both land owners and land management agencies. Overstocking areas can greatly influence vegetative growth and vigor, and result in changes in communities if not appropriately managed, particularly during drought years. Livestock grazing is expected to continue at the same rate and in the same manner as it currently occurs. As such, impacts would be similar to those currently experienced and would not likely increase beyond the current state. Vegetation manipulation and management activities, such as sagebrush clearing and prescribed fires, impact vegetation and are often implemented by land managers. These activities are likely to occur at varying levels in the analysis area in the future, however, with a mixture of land ownership it is not possible to predict when and to what extent with any certainty. All these land uses are likely to contribute a minor component in impacts to vegetation.

3.4. Noxious Weeds and Invasive Species

3.4.1. Affected Environment

The analysis area for impacts from noxious weeds and invasive species is the Escavada Wash watershed. The Escavada Wash watershed lies within the larger San Juan Basin. In the San Juan Basin,

invasive plants are frequently found in areas that have been disturbed by surface activities. Invasive species are generally tolerant of disturbed conditions, and often times outcompetes native species. These plants may displace native plant communities and lead to the degradation of wildlife habitat. A total of 212 invasive and poisonous weeds have been identified on BLM-managed land (Heil and White 2000). The New Mexico Department of Agriculture (NMDA) has designated certain plants as state-listed noxious weeds and their current management classes for each species. This statewide list is maintained by the NMDA. The BLM uses the New Mexico statewide list as the baseline document to establish their primary noxious weed species of concern. Invasive plant species are managed on BLM lands through cooperative agreements between the BLM and the San Juan County Soil and Water Conservation District. Additionally, BLM works closely with other federal and state agencies, management groups, private landowners, and industry cooperators to address invasive plant management by incorporating prevention and control measures on projects proposed on BLM lands (BLM 2014b). During the field surveys of the proposed project areas, halogeton, a Class B- listed noxious weed species was the only noxious weed listed by the USDA, NMDA, or BLM-FFO.

3.4.2. *Impacts from Alternative B: Proposed Action*

Direct and Indirect Impacts

Disturbed soils may provide an opportunity for the introduction and establishment of non-native invasive species. The Proposed Action would result in a total 2.33 acres of total new disturbance. During construction and operation, noxious weed sources could be introduced to disturbed areas from vehicles, equipment, people, wind, water, or other mechanisms. There is the potential for non-native invasive weeds to establish or spread in the area. WPX would be responsible for monitoring and controlling any non-native invasive weed species within the permitted area for the life of the project. The re-vegetation of the disturbed area would reduce the potential for non-native invasive weeds to establish. It is anticipated that continued weed control efforts would reduce or eliminate any weed establishment. However, with the established seed source present surrounding the proposed action area, it makes eliminating halogeton extremely difficult, especially if the surrounding area is not treated. Impacts are likely to be low and long-term.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the Escavada Wash watershed, which may impact the potential for introduction and establishment of noxious weed species resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Community Development
- Livestock grazing
- Vegetation management

One hundred and five (105) oil and gas wells have been developed in the Escavada Wash watershed. These wells have resulted in a long-term disturbance of about 79 acres of surface disturbance. Based on the 326 potential wells assumed in the RFD (Engler, et al., 2014), oil and gas development in the Escavada Wash watershed may result in about 2,116 acres of short-term disturbance from potential future development, with approximately 1,627 acres of that being reclaimed. This results in about 490 acres of long-term surface disturbance from potential future oil and gas development in the Escavada Wash watershed. The total long-term disturbance for existing and potential oil and gas development in the Escavada Wash watershed would be approximately 568 acres. The Proposed Action would contribute 2.33 acres of short-term disturbance and would be part of the 1,627 acres that is reclaimed. Vegetation would become reestablished in these areas, but may include invasive species that would require continued management. These changes would be cumulative to impacts from the total 2,116 acres.

Community development in the area is currently minimal and it is not expected to greatly increase in the reasonably foreseeable future based on the area's current infrastructure and rate of development. As

housing and access roads are constructed and/or removed, ground disturbance from these activities provides an opportunity for noxious weeds to become established. Livestock grazing and level of intensity may also impact establishment and spread of noxious weeds in the analysis area. Livestock grazing is closely managed by both land owners and land management agencies. Overstocking areas can greatly increase the potential for noxious weeds to establish and take over an area if not appropriately managed, particularly during drought years when noxious weeds typically have a competitive advantage. Livestock grazing is expected to continue at the same rate and in the same manner as it currently occurs. As such, impacts would be similar to those currently experienced and would not likely increase beyond the current state. Vegetation manipulation and management activities, such as sagebrush clearing and prescribed fires, impact vegetation and are often implemented by land managers. These activities are likely to occur at varying levels in the analysis area in the future, however, with a mixture of land ownership it is not possible to predict when and to what extent with any certainty. All these land uses are likely to contribute a minor component in impacts to the establishment of noxious weeds and invasive species.

3.4.3. *Impacts from Alternative C: Alternative Route*

Direct and Indirect Impacts

Alternative C would result in 2.69 acres of new surface disturbance. During construction and operation, noxious weed sources could be introduced to disturbed areas from vehicles, equipment, people, wind, water, or other mechanisms. There is the potential for non-native invasive weeds to establish or spread in the area. WPX would be responsible for monitoring and controlling any non-native invasive weed species within the permitted area for the life of the project. The re-vegetation of the disturbed area would reduce the potential for non-native invasive weeds to establish. It is anticipated that continued weed control efforts would reduce or eliminate any weed establishment. However, with an established seed source present surrounding the proposed action area, it makes eliminating halogeton extremely difficult, especially if the surrounding area is not treated. Impacts are likely to be low and long-term.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the Escavada Wash watershed, which may impact the potential for introduction and establishment of noxious weed species resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Community Development
- Livestock grazing
- Vegetation management

One hundred and five (105) oil and gas wells have been developed in the Escavada Wash watershed. These wells have resulted in a long-term disturbance of about 79 acres of surface disturbance. Based on the 326 potential wells assumed in the RFD (Engler, et al., 2014), oil and gas development in the Escavada Wash watershed may result in about 2,116 acres of short-term disturbance from potential future development, with approximately 1,627 acres of that being reclaimed. This results in about 490 acres of long-term surface disturbance from potential future oil and gas development in the Escavada Wash watershed. The total long-term disturbance for existing and potential oil and gas development in the Escavada Wash watershed would be approximately 568 acres. Alternative C would contribute 3.67 acres of short-term disturbance and would be part of the 1,627 acres that is reclaimed. Vegetation would become reestablished in these areas, but may include invasive species that would require continued management. These changes would be cumulative to impacts from the total 2,116 acres.

Community development in the area is currently minimal and it is not expected to greatly increase in the reasonably foreseeable future based on the area's current infrastructure and rate of development. As housing and access roads are constructed and/or removed, ground disturbance from these activities provides an opportunity for noxious weeds to become established. Livestock grazing and level of intensity may also impact establishment and spread of noxious weeds in the analysis area. Livestock grazing is

closely managed by both land owners and land management agencies. Overstocking areas can greatly increase the potential for noxious weeds to establish and take over an area if not appropriately managed, particularly during drought years when noxious weeds typically have a competitive advantage. Livestock grazing is expected to continue at the same rate and in the same manner as it currently occurs. As such, impacts would be similar to those currently experienced and would not likely increase beyond the current state. Vegetation manipulation and management activities, such as sagebrush clearing and prescribed fires, impact vegetation and are often implemented by land managers. These activities are likely to occur at varying levels in the analysis area in the future, however, with a mixture of land ownership it is not possible to predict when and to what extent with any certainty. All these land uses are likely to contribute a minor component in impacts to the establishment of noxious weeds and invasive species.

3.5. Wildlife

3.5.1. Affected Environment

General Wildlife

The analysis area for impacts to wildlife is the Escavada Wash watershed. The landscape found within the watershed is comprised of a mosaic of vegetative communities mentioned in Section 3.3 above. This landscape provides necessary habitat for a variety of vertebrate and invertebrate species. The objectives of the BLM wildlife management program are to “ensure optimum populations and a natural abundance and diversity of fish and wildlife values by restoring, maintaining, and enhancing habitat conditions for consumptive and non-consumptive uses” (BLM 2003b, 2-24). The proposed project area is dominated by big sagebrush. It receives year-long use by mule deer (*Odocoileus hemionus*) and lesser small mammals.

A discussion of wildlife identified within the proposed project area is provided in the BSR (Appendix B).

Migratory Birds

Executive Order (EO) 13186, dated January 17, 2001, calls for increased efforts to more fully implement the Migratory Bird Treaty Act of 1918. In keeping with this mandate, the BLM-FFO has issued an interim policy to minimize unintentional take, as defined by the EO, and to better optimize migratory bird efforts related to BLM-FFO activities. In keeping with this policy, a list of priority birds of conservation concern which occur in similar ecological regions similar to the proposed project area was compiled using the U.S. Fish and Wildlife Service’s Information, Planning, and Conservation System (IPAC) (USFWS 2015). The U.S. Fish and Wildlife Service’s Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

The selected species have a known distribution in the BLM-FFO area and may be affected by various types of perturbations. These species and an evaluation of their potential to occur within the proposed project area are discussed in the BSR (Appendix B); a list of species identified within the proposed project area during the biological surveys is also provided.

Impacts from Alternative B: Proposed Action

Direct and Indirect Impacts

During the construction phase of the proposed project, vegetation will be brush-hogged and vegetation cleared where needed along the proposed trench route within the proposed corridor. The proposed project would result in the direct removal of approximately 2.33 acres of sagebrush shrubland and badland communities with approximately 13 piñon and juniper trees. The proposed project area would be converted to a reseed community following reclamation. The impacts to the vegetation communities are described in detail in Section 3.3 (Upland Vegetation). If reclamation is successful, sagebrush shrubland would become re-established within the proposed project area. However, as discussed in Section 3.3, the re-establishment of a mature, native plant community could require decades, and it is possible that the

plant communities may not return to their original plant cover types within the action period of impacts considered (BLM 2003a, 4-19).

There is available, similar habitat in the surrounding area that wildlife could utilize. However, the clearing of vegetation and the transformation of the proposed project area to a reseed community would alter habitat and the mosaic of the landscape currently utilized by wildlife species, including priority bird species.

Habitat loss and fragmentation from the cross-country portion of the proposed action would likely reduce the carrying capacity for wildlife, including avian species, although the exact level of reduction is difficult to quantify without more indepth studies (BLM 2003a, 4-29). The Proposed Action would result in 1,111.5 feet of new fragmentation and 1,353.7 feet along an proposed/approve pipeline. This approved pipeline is tied to two approved wells that have not been drilled and unlikely to be drilled in the near future. Upon interim reclamation of the proposed project, the entirety of the pipeline would be reseeded and recontoured in efforts to reestablish pre-disturbance conditions. If reclamation efforts are successful, the disturbed area could potentially be utilized by wildlife, domestic livestock, and avian species. Edge effects by way of noise and activity from construction (short-term edge effect) could cause indirect habitat loss by deterring individuals from utilizing available habitat adjacent to the action area. Long term edge effect and habitat loss include the introduction of invasive weed species, heavy erosion in the cross-country portion within Badland community, and the potential for increased human activity in the future (OHVs vehicles driving on pipeline, etc).

General Wildlife/Migratory Birds

The proposed action would directly affect a minimum of 2.33 acres of potential wildlife/migratory bird habitat. This acreage of impact does not include any type of impact buffer since buffers can variable depending of the species. The proposed alternative will also result in the loss of approximately 2 piñon pine and 11 juniper trees of varying ages and sizes. The cross-country portion will create habitat fragmentation to some wildlife species by degrading the habitat due to erosion, possible the spread of invasive weed species, and the potential increase of human activities. Due to the mobility of adult birds, they would be unlikely to be directly harmed by the proposed project. Since the overall disturbance is less than 4.0 acres, no migratory bird nest survey will be required, in accordance to the BLM/FFO Migratory Bird Policy. Therefore, there may be impacts to nesting birds within the proposed project area if WPX's proposed construction occurs within the breeding season. If project activities occur during migratory bird breeding season, birds nesting outside of but near the proposed project area may also abandon existing nests as a result of visual and audial disturbances. Long-term operations would result in an increase of human activity in the immediate proposed action area. In consideration of these factors, there would be a short-term and long-term impacts as a result of the action.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the Escavada Wash watershed, which may impact habitat and wildlife species resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Community Development
- Livestock grazing
- Vegetation management

One hundred and five (105) oil and gas wells have been developed in the Escavada Wash watershed. These wells have resulted in a long-term disturbance of about 79 acres of surface disturbance. Based on the 326 potential wells assumed in the RFD (Engler, et al., 2014), oil and gas development in the Escavada Wash watershed may result in about 2,116 acres of short-term disturbance from potential future development, with approximately 1,627 acres of that being reclaimed. This results in about 490 acres of long-term surface disturbance from potential future oil and gas development in the Escavada Wash watershed. The total long-term disturbance for existing and potential oil and gas development in

the Escavada Wash watershed would be approximately 568 acres. The Proposed Action would contribute 2.33 acres of short-term disturbance and would be part of the 1,627 acres that is reclaimed. Vegetation would become reestablished in these areas, but may result in a slight change in the community. These changes would be cumulative to impacts from the total 2,116 acres. The intensity of indirect effects would be dependent upon the species, its life history, time of year and/or day and the type and level of human and vehicular activity occurring. This disturbance would have the same impacts as described for direct and indirect impacts.

Community development in the area is currently minimal and it is not expected to greatly increase in the reasonably foreseeable future based on the area's current infrastructure and rate of development. As housing and access roads are constructed and/or removed, habitat may be altered. Livestock grazing and level of intensity may also impact wildlife in the analysis area. Livestock grazing is closely managed by both land owners and land management agencies. Overstocking areas can greatly influence vegetative growth and vigor, and result increased competition for wildlife if not appropriately managed, particularly during drought years. Livestock grazing is expected to continue at the same rate and in the same manner as it currently occurs. As such, impacts would be similar to those currently experienced and would not likely increase beyond the current state. Vegetation manipulation and management activities, such as sagebrush clearing and prescribed fires, impact wildlife habitat and are often implemented by land managers. These activities are likely to occur at varying levels in the analysis area in the future, however, with a mixture of land ownership it is not possible to predict when and to what extent with any certainty. All these land uses are likely to contribute a minor component in impacts to wildlife.

Impacts from Alternative C: Alternative Route

Direct and Indirect Impacts

General Wildlife/Migratory Birds

Direct and indirect impacts to general wildlife from Alternative C would be the same as the Proposed Action with the exception of the following:

- Alternative C would result in approximately 2.69 acres of new disturbance. This would be similar to the new disturbance from the Proposed Action (0.36 acres more), except that habitat fragmentation would be significantly less under Alternative C since the proposed pipeline would follow existing disturbance.
- Alternative C would result in the loss of approximately 43 piñon and juniper trees.
- Alternative C would be aligned parallel to an existing transmission line and an existing access road in an effort to reduce habitat fragmentation. The area of surface disturbance would mostly overlap the two-track next to the transmission line and an existing pipeline and road. The Alternative C ROW would have to be offset from the transmission line a minimum of 20 feet for safety reasons. Alternative C would result in 1,546 feet of ground disturbance along this existing corridor. The effects of the fragmentation created along the Alternative C route would be minimal to wildlife.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the Escavada Wash watershed, which may impact habitat and wildlife species resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Community Development
- Livestock grazing
- Vegetation management

One hundred and five (105) oil and gas wells have been developed in the Escavada Wash watershed. These wells have resulted in a long-term disturbance of about 79 acres of surface disturbance. Based on the 326 potential wells assumed in the RFD (Engler, et al., 2014), oil and gas development in the Escavada Wash watershed may result in about 2,116 acres of short-term disturbance from potential future development, with approximately 1,627 acres of that being reclaimed. This results in about 490 acres of long-term surface disturbance from potential future oil and gas development in the Escavada Wash watershed. The total long-term disturbance for existing and potential oil and gas development in the Escavada Wash watershed would be approximately 568 acres. The Proposed Action would contribute 3.67 acres of short-term disturbance and would be part of the 1,627 acres that is reclaimed. Vegetation would become reestablished in these areas, but may result in a slight change in the community. These changes would be cumulative to impacts from the total 2,116 acres. The intensity of indirect effects would be dependent upon the species, its life history, time of year and/or day and the type and level of human and vehicular activity occurring. This disturbance would have the same impacts as described for direct and indirect impacts.

Community development in the area is currently minimal and it is not expected to greatly increase in the reasonably foreseeable future based on the area's current infrastructure and rate of development. As housing and access roads are constructed and/or removed, habitat may be altered. Livestock grazing and level of intensity may also impact wildlife in the analysis area. Livestock grazing is closely managed by both land owners and land management agencies. Overstocking areas can greatly influence vegetative growth and vigor, and result increased competition for wildlife if not appropriately managed, particularly during drought years. Livestock grazing is expected to continue at the same rate and in the same manner as it currently occurs. As such, impacts would be similar to those currently experienced and would not likely increase beyond the current state. Vegetation manipulation and management activities, such as sagebrush clearing and prescribed fires, impact wildlife habitat and are often implemented by land managers. These activities are likely to occur at varying levels in the analysis area in the future, however, with a mixture of land ownership it is not possible to predict when and to what extent with any certainty. All these land uses are likely to contribute a minor component in impacts to wildlife.

3.6. Special Status Species

3.6.1. Affected Environment

The analysis area is the portion of potential Aztec gilia/Brack's hardwall cactus habitat (Nacimiento Formation) within the Escavada Wash watershed. The BLM manages certain species which are not federally listed as threatened or endangered in order to prevent or reduce the need to list them as threatened or endangered in the future. BLM Special Status Species include BLM Sensitive Species and BLM-FFO Special Management Species (SMS).

New Mexico BLM State Directors have developed a list of BLM Sensitive Species for the State of New Mexico (BLM 2011a, BLM 2011b, BLM 2011c, BLM 2012a). In accordance with BLM Manual 6840, the BLM-FFO has prepared a list of BLM-FFO SMS to focus species management efforts toward maintaining habitats under a multiple-use mandate (BLM 2008a, BLM 2008c). BLM-FFO SMS include some BLM Sensitive Species and other species for which the BLM-FFO has determined special management is appropriate (BLM 2008c). The authority for this policy and guidance is established by the ESA; Title II of the Sikes Act, as amended (16 USC 670a-670o, 74 Stat. 1052); FLPMA; and Department of Interior Manual 235.1.1A.

Also in accordance to Bureau of Land Management Manual 6840, it is the policy to manage for the conservation of BLM Sensitive Species and their associated habitats and to ensure that actions authorized, funded, or carried out do not contribute to the need to list any sensitive species as Threatened or Endangered under the Endangered Species Act. Aztec gilia (*Aliciella formosa*) and Brack's cactus (*Sclerocactus cloveriae* var *brackii*) are on the BLM Sensitive Species list approved by the State Director in 2011. In 2012 new habitat for Brack's cactus/Aztec gilia was discovered in the area of the proposed project. To protect Brack's cactus and Aztec gilia habitat, interim guidance for this new habitat area was developed until the BLM/FFO can collect new information while recognizing valid

existing lease rights. This “Interim Guidance for Brack’s cactus and Aztec Gilia” will be followed until the appropriate habitat information is collected and a more refined habitat map and management are developed.

3.6.2. *Impacts from Alternative B: Proposed Action*

Direct and Indirect Impacts

Based on known range and habitat, six (6) BLM Special Status Species have the potential to occur within the area of proposed disturbance. The Special Status Species with the potential to occur within the proposed project area are as follows:

- Aztec gilia BLM Sensitive Species, State of New Mexico Endangered Species : within mapped potential habitat
- Brack’s hardwall cactus: BLM Sensitive Species, State of New Mexico Endangered Species occupied habitat in project area

Brack’s Hardwall Cactus and Aztec Gilia

The Proposed Action is located entirely within the BLM-FFO potential Aztec gilia/Brack’s hardwall cactus habitat (Nacimiento Formation).

No Aztec gilia were identified during the surveys of the proposed project area. The survey was completed outside of the blooming period (late April to mid-June) for these two species. Additionally, individuals of these species are typically very small and/or difficult to identify outside of the blooming period. As such, it is possible that individuals could have been overlooked during the survey.

The cross-country section of the proposed action would remove at least 3.09 acres of Brack’s cactus and Aztec gilia habitat. The area of disturbance includes a 100ft buffer outside of the disturbance edge. Although the recommended buffer for sensitive plants is 300-600ft from disturbance edge, 100ft buffer was chosen due to the scope of the project, topography, and habitat quality for this impact analysis. Occupied habitat occurs within and downslope of the proposed ROW. Erosion and sedimentation will likely impact all or most of the individuals within this buffer area. By going cross-country, the proposed action would cause habitat fragmentation by splitting approximately 35+ acres of undisturbed Brack’s cactus and Aztec gilia habitat into two small habitat parcels. Habitat fragmentation can have large impacts to species populations through the loss of quality habitat. The badlands surrounding the occupied mapped habitat (see map in Appendix A) may still provide habitat for this species but may be less suitable based on soil characteristics. However more thorough habitat assessment/survey would need to be conducted during the flowering season

Eleven (11) Brack’s hardwall cacti were identified within the proposed pipeline corridor and another group of 47 were within approximately 30-50ft of the edge of disturbance during the survey of the proposed action area on March 10, 2016. During the field survey on March 10, 2016 the suitable habitat was mapped with a GPS unit. The Proposed Action and disturbance buffer would result in disturbance to approximately 3.09 acres of suitable habitat (1.01 of occupied habitat) and the removal of 58 individuals (11 within ROW and 47 just outside ROW) and any additional cacti that may be found within the proposed ROW. The survey was completed outside of the blooming period (late April to mid-June) for this species. Additionally, individuals of this species are typically very small and difficult to identify outside of the blooming period. As such, it is possible that individuals could have been overlooked during the survey. All areas of disturbance associated with the installation of the pipeline would be fully reclaimed. Upon reclamation, it is possible Aztec gilia/Brack’s hardwall cactus could become established in these areas.

In accordance to the BLM/FFO's Interim Guidance for Brack's cactus, all 58 cacti would be required to be transplanted prior to any construction activities. A preconstruction survey will identify the all individuals to be relocated and transplanted under the direction of the BLM.

Cumulative Impacts

The analysis area is the portion of potential Aztec gilia/Brack's hardwall cactus habitat (Nacimiento Formation) within the Escavada Wash watershed. Past, present, and reasonably foreseeable future actions within the analysis area which may also impact BLM Special Status Species, through direct and effective habitat loss resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Livestock grazing
- Vegetation treatments
- Community Development
- Recreation

Approximately 90 oil and gas wells have been developed in the analysis area. These wells have resulted in a long-term disturbance of about 68 acres of surface disturbance. Based on the RFD (Engler, et al., 2014), oil and gas development in the analysis area may result in about 2,013 acres of short-term disturbance from potential future development, with about 1,561 acres of that being reclaimed. This results in approximately 452 acres of long-term surface disturbance from potential future oil and gas development in the analysis area. The total long-term disturbance for existing and potential oil and gas development in the analysis area would be about 520 acres. The Proposed Action would account for 2.66 acres of short-term disturbance to the analysis area. This 2.66 acres would be part of the 1,561 acres that would be reclaimed. The Proposed Action would not result in any long-term disturbance to the analysis area as the project would be reclaimed. The intensity of indirect effects would be dependent upon the species, its life history, time of year and/or day and the type and level of human and vehicular activity occurring.

Community development in the area is currently minimal and it is not expected to greatly increase in the reasonably foreseeable future based on the area's current infrastructure and rate of development. As housing and access roads are constructed and/or removed, habitat may be altered. Livestock grazing and level of intensity may also impact wildlife in the analysis area. Livestock grazing is closely managed by both land owners and land management agencies. Overstocking areas can greatly influence vegetative growth and vigor, and result in increased competition for wildlife if not appropriately managed, particularly during drought years. Livestock grazing is expected to continue at the same rate and in the same manner as it currently occurs. As such, impacts would be similar to those currently experienced and would not likely increase beyond the current state. Vegetation manipulation and management activities, such as sagebrush clearing and prescribed fires, impact wildlife habitat and are often implemented by land managers. These activities are likely to occur at varying levels in the analysis area in the future, however, with a mixture of land ownership it is not possible to predict when and to what extent with any certainty. All these land uses are likely to contribute a minor component in impacts to wildlife.

3.6.3. *Impacts from Alternative C: Alternative Route*

Direct and Indirect Impacts

Alternative C would be aligned parallel to an existing transmission line and associated maintenance road in an effort to reduce habitat fragmentation for Brack's cactus. Alternative C would result in the disturbance and modification of approximately 0.99 acres of occupied Brack's habitat (with 100ft buffer, see Section 3.6.2). This would be less acres of disturbance to Brack's habitat than the Proposed Action, since the occupied habitat of Alt C would be located at the habitat edge and along an existing disturbance corridor (See Map in Appendix A). The location of this alternative route would create minimal, if any, habitat fragmentation. Habitat loss would be kept to a minimum. The 35+ acres of undisturbed suitable habitat would remain intact.

Four (4) Brack's hardwall cacti were identified within the Alternative C corridor during the field survey of Alternative C on March 10, 2016. During the field survey on March 10, 2016 the suitable habitat was mapped with a GPS unit. Alternative C would result in disturbance to 0.99 acres of suitable Brack's habitat and the removal of 4 individuals within the ROW. These four individuals would not require transplanting under Alternative C since this alternative meets the criteria of minimizing impacts to habitat under the Interim Guidance for Brack's cactus.

Cumulative Impacts

The analysis area is the portion of potential Aztec gilia/Brack's hardwall cactus habitat (Nacimiento Formation) within the Escavada Wash watershed. Past, present, and reasonably foreseeable future actions within the analysis area which may also impact BLM Special Status Species, through direct and effective habitat loss resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Livestock grazing
- Vegetation treatments
- Community Development
- Recreation

Approximately 90 oil and gas wells have been developed in the analysis area. These wells have resulted in a long-term disturbance of about 68 acres of surface disturbance. Based on the RFD (Engler, et al., 2014), oil and gas development in the analysis area may result in about 2,013 acres of short-term disturbance from potential future development, with about 1,561 acres of that being reclaimed. This results in approximately 452 acres of long-term surface disturbance from potential future oil and gas development in the analysis area. The total long-term disturbance for existing and potential oil and gas development in the analysis area would be about 520 acres. Alternative C would account for 3.67 acres of short-term disturbance to the analysis area. This 3.67 acres would be part of the 1,561 acres that would be reclaimed. Alternative C would not result in any long-term disturbance to the analysis area. The intensity of indirect effects would be dependent upon the species, its life history, time of year and/or day and the type and level of human and vehicular activity occurring.

Community development in the area is currently minimal and it is not expected to greatly increase in the reasonably foreseeable future based on the area's current infrastructure and rate of development. As housing and access roads are constructed and/or removed, habitat may be altered. Livestock grazing and level of intensity may also impact wildlife in the analysis area. Livestock grazing is closely managed by both land owners and land management agencies. Overstocking areas can greatly influence vegetative growth and vigor, and result in increased competition for wildlife if not appropriately managed, particularly during drought years. Livestock grazing is expected to continue at the same rate and in the same manner as it currently occurs. As such, impacts would be similar to those currently experienced and would not likely increase beyond the current state. Vegetation manipulation and management activities, such as sagebrush clearing and prescribed fires, impact wildlife habitat and are often implemented by land managers. These activities are likely to occur at varying levels in the analysis area in the future, however, with a mixture of land ownership it is not possible to predict when and to what extent with any certainty. All these land uses are likely to contribute a minor component in impacts to wildlife.

3.7. Livestock Grazing

3.7.1. Affected Environment

The proposed project area is within BLM-FFO Largo Community (5083). The Largo Community grazing allotment encompasses approximately 47,059 acres. A total of 1,678 cattle and 1,370 sheep federal Animal Unit Months (AUMs) are provided by this allotment. An AUM is the amount of forage required to sustain a 1,000 lb cow and her calf, or five sheep, for the equivalent for one month. This allotment is permitted for 145 head of cattle and 596 head of sheep from March 1 thru February 28, annually.

3.7.2. *Impacts from Alternative B: Proposed Action*

Direct and Indirect Impacts

The proposed project would remove livestock forage. During the construction phase of the proposed project, vegetation within the limits of the proposed project area would be cleared; a maximum of approximately 2.33 acres of rangeland would be lost for the short term. No long-term disturbance would result after the area has been successfully reclaimed. The entire proposed project area would be reclaimed and reseeded; therefore, only a minimal reduction to the total AUMs would be lost for the short term. Re-seed vegetation within reclaimed areas would consist of native plant species included in the BLM Sagebrush Community Standard Seed Mixture, as well as “volunteers,” or species that are not deliberately planted. The effects of the proposed project on livestock forage would depend on the success of reclamation.

Additional short-term impacts could include displacement of permitted livestock during construction activities or exposure of livestock to hazards. After construction and reclamation is completed, no additional disturbance from the proposed action is likely to occur. During the operation of the pipelines, routine or emergency maintenance on the proposed pipelines may be required. These disturbances would be minimal and isolated to one specific location along the pipeline. Overall, the proposed project would result in a beneficial impact from the reduction of truck traffic and disturbance in the area as a result of piping all produced products from wells in the surrounding area. As discussed in Section 2.2.2 (Description of Proposed Project – Design Features and BMPs), design features and BMPs would be implemented to reduce impacts of disturbance to livestock.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the Largo Community grazing allotment that may impact forage production and increase hazards to livestock resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Community Development
- Vegetation management

Sixty seven (67) oil and gas wells have been developed in the Largo Community grazing allotment. These wells have resulted in a long-term disturbance of about 50 acres of surface disturbance. Based on the 226 potential wells assumed in the RFD (Engler, et al., 2014), oil and gas development in the Largo Community grazing allotment may result in about 1,478 acres of short-term disturbance from potential future development, with approximately 1,139 acres of that being reclaimed. This results in about 340 acres of long-term surface disturbance from potential future oil and gas development in the Largo Community grazing allotment. The total surface disturbance from past, present, and reasonably foreseeable actions in the Largo Community grazing allotment is approximately 389 acres. The Proposed Action would not result in long-term disturbance, or the reduction of AUMS.

Community development in the area is currently minimal and it is not expected to greatly increase in the reasonably foreseeable future based on the area's current infrastructure and rate of development. As housing and access roads are constructed and/or removed, livestock forage is altered. Impacts would be similar to those currently experienced and would not likely increase beyond the current state. Vegetation manipulation and management activities, such as sagebrush clearing and prescribed fires, that impact forage are often implemented by land managers. These activities are likely to occur at varying levels in the analysis area in the future, however, with a mixture of land ownership it is not possible to predict when and to what extent with any certainty. These land uses are likely to contribute a minor component in impacts to livestock grazing.

3.7.3. *Impacts from Alternative C: Alternative Route*

Direct and Indirect Impacts

Alternative C would remove livestock forage. During the construction phase of the proposed project, vegetation within the limits of the Alternative C area would be cleared; a maximum of approximately 3.67 acres of rangeland would be lost for the short term. No long-term disturbance would result after the area has been successfully reclaimed. The entire Alternative C area would be reclaimed and reseeded; therefore, only a minimal reduction to the total AUMs would be lost for the short term. Re-seed vegetation within reclaimed areas would consist of native plant species included in the BLM Sagebrush Community Standard Seed Mixture, as well as “volunteers,” or species that are not deliberately planted. The effects of Alternative C on livestock forage would depend on the success of reclamation.

Additional short-term impacts could include displacement of permitted livestock during construction activities or exposure of livestock to hazards. After construction and reclamation is completed, no additional disturbance from Alternative C is likely to occur. During the operation of the pipelines, routine or emergency maintenance on the pipelines may be required. These disturbances would be minimal and isolated to one specific location along the pipeline. Overall, Alternative C would result in a beneficial impact from the reduction of truck traffic and disturbance in the area as a result of piping all produced products from wells in the surrounding area. As discussed in Section 2.2.2 (Description of Proposed Project – Design Features and BMPs), design features and BMPs would be implemented to reduce impacts of disturbance to livestock.

Cumulative Impacts

The analysis area and impact indicator for cumulative impacts is the same as for direct and indirect impacts. Past, present, and reasonably foreseeable future actions within the Largo Community grazing allotment that may impact forage production and increase hazards to livestock resulting from surface disturbance include the following:

- Oil and gas development, including associated roads and pipelines
- Community Development
- Vegetation management

Sixty seven (67) oil and gas wells have been developed in the Largo Community grazing allotment. These wells have resulted in a long-term disturbance of about 50 acres of surface disturbance. Based on the 226 potential wells assumed in the RFD (Engler, et al., 2014), oil and gas development in the Largo Community grazing allotment may result in about 1,478 acres of short-term disturbance from potential future development, with approximately 1,139 acres of that being reclaimed. This results in about 340 acres of long-term surface disturbance from potential future oil and gas development in the Largo Community grazing allotment. The total surface disturbance from past, present, and reasonably foreseeable actions in the Largo Community grazing allotment is approximately 389 acres. Alternative C would not result in long-term disturbance, or the reduction of AUMS.

Community development in the area is currently minimal and it is not expected to greatly increase in the reasonably foreseeable future based on the area's current infrastructure and rate of development. As housing and access roads are constructed and/or removed, livestock forage is altered. Impacts would be similar to those currently experienced and would not likely increase beyond the current state. Vegetation manipulation and management activities, such as sagebrush clearing and prescribed fires, that impact forage are often implemented by land managers. These activities are likely to occur at varying levels in the analysis area in the future, however, with a mixture of land ownership it is not possible to predict when and to what extent with any certainty. These land uses are likely to contribute a minor component in impacts to livestock grazing.

3.8. Cultural Resources

3.8.1. Affected Environment

The proposed project area is located within the archaeologically rich San Juan Basin of northwestern New Mexico. In general, the history of the San Juan Basin can be divided into five major periods: PaleoIndian (circa [ca.] 10,000 B.C. to 5,500 B.C.); Archaic (ca. 5,500 B.C. to A.D. 400); Basketmaker II-III and Pueblo I-IV (aka Anasazi; A.D. 1-1,540); and historic (A.D. 1,540 to present), which includes Native American as well as later Hispanic and Euro-American settlers. Detailed descriptions of these various periods are provided in the BLM-FFO PRMP/FEIS (BLM 2003a, 3-66 – 3-86) and will not be reiterated here. Additional information can also be found in an associated documented, the Cultural Resources Technical Report (Science Applications International Corporation 2002).

BLM Manual 8100, The Foundations for Managing Cultural Resources (2004) defines a cultural resource as “a definite location of human activity, occupation, or use identifiable through field inventory (survey), historical documentation, or oral evidence. The term includes archaeological, historic, or architectural sites, structures, or places with important public and scientific uses, and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. (cf. “traditional cultural property”). Cultural resources are concrete, material places and things that are located, classified, ranked, and managed through the system of identifying, protecting, and utilizing for public benefit described in this Manual series. They may be but are not necessarily eligible for the National Register (a.k.a. “historic property”). Cultural sites vary considerably, and can include but are not limited to simple artifact scatters, domiciles of various types with a myriad of associated features, rock art and inscriptions, ceremonial/religious features, and roads and trails.

In the broadest sense cultural resources include sites, buildings, structures, objects, and districts/landscapes (NPS 1997). Cultural resources (prehistoric or historic) vary considerably, and can include but are not limited to simple artifact scatters, domiciles of various types with a myriad of associated features, rock art and inscriptions, ceremonial/religious features, and roads and trails. Traditional Cultural Properties (TCPs) are cultural resources that are eligible for the National Register of Historic Places (NRHP) and have cultural values, sometimes sacred, that transcend for instance the values of scientific importance that are normally ascribed to cultural resources such as archaeological sites and may or may not coincide with archaeological sites (Parker and King 1998). Historically Native American communities are most likely to identify TCPs, although TCPs are not restricted to those associations. Some TCPs are well known while others may only be known to a small group or otherwise only vaguely known. Native American tribal perspectives on what is considered a TCP are not necessarily limited by a places National Register eligibility or lack thereof.

The National Register of Historic Places (NRHP; 36 CFR Part 60) is the basic benchmark by which the significance of cultural resources are evaluated by a federal agency when considering what effects its actions may have on those resources. To summarize, to be considered eligible for the NRHP a cultural resource must meet one or more of the following criteria: a) are associated with events that have significantly contributed to the broad patterns of our history; or b) are associated with the lives of persons significant in our past; or c) embody distinctive characteristics of the type, period, or method of construction, or represents the work of a master, or possesses high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction; or d) have yielded, or may be likely to yield, information that is important in a pre-history or history. The resource, as applicable, must possess one or more of the following aspects of integrity; location, design, setting, materials, workmanship, feeling, and association. In the event a determination of eligibility cannot be made, the resource is treated as eligible (a historic property).

Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations (36 CFR Part 800) requires federal agencies to consider what effect their licensing, permitting, funding or otherwise authorizing an undertaking, such as an APD or ROW, may have on properties eligible for the National Register. Pursuant to 36 CFR 800.16 (i), “Effect means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register.” Effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative. Area of Potential Effect (APE) means the geographic area or

areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is typically defined as areas to be directly disturbed and areas in immediate close proximity. Cultural resources are identified through a combination of literature review and pedestrian survey consistent with guidelines set forth in the Procedures for Performing Cultural Resources Fieldwork on Public Lands in the Area of New Mexico BLM Responsibilities (BLM 2005).

BLM Farmington Field Office compliance with Section 106 of the National Historic Preservation Act is adhered to by following the State Protocol Agreement between New Mexico BLM and New Mexico State Historic Preservation Officer (BLM-SHPO 2014), which is authorized by the National Programmatic Agreement among the BLM, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (NPA 2012), and other applicable BLM handbooks.

Cultural resources within the entire APE for the Proposed Action were identified by a literature review and an archaeological Class III level (100%) pedestrian survey by LAC and reports were prepared and submitted to the BLM.

W. Lybrook Trunk 1 Pipeline is on BLM surface and covered in LAC Report 2015-4c (BLM 2016(I)020F). The Class III inventory identified no cultural sites within the APE. Eight previously recorded sites lie within ¼ mile of the project. Two of these sites, LA180771 and LA180008 are within 500 feet. The proposed pipeline passes between these two sites. Both sites were visited during the Class III survey. LA 180771 is about 115 feet north of the proposed centerline, and LA180008 is about 140 feet to the south of the proposed pipeline. Both are beyond the current survey area. No TCPs are known to exist in the APE.

3.8.2. *Impacts from Alternative B: Proposed Action*

Direct and Indirect Impacts

There are no known historic properties within the APE. The Proposed Action will have no direct or indirect impacts on historic properties (no historic properties affected).

Cumulative Impacts

The Cumulative Impacts Analysis Area (CIAA) is the associated watershed(s). The United States is divided and sub-divided into successively smaller hydrologic units which are classified into six levels nested within each other, from the largest geographic area (region) to the smallest geographic area (subwatershed). The boundaries are distinguished by hydrographic and topographic criteria that delineate an area of land upstream from a specific point on a river, stream or similar surface waters (USGS 2013, NRCS 2013). Hydrologic units can be viewed as a naturally defined landscape and impacts to cultural resources in one part of that landscape could, theoretically, affect a broader understanding of the interrelationships between sites in the landscape as a whole. The smallest hydrologic unit area, typically from 10 to 40 K acres (15 to 62 mi²; HUC 12) or combination thereof are used as the CIAA. The CIAA for cultural resources is the proposed project area, the Betonnie Tsosie Wash and the Headwaters Kimbeto Wash subwatersheds. The Betonnie Tsosie Wash subwatershed totals 34,130 acres. Based on New Mexico Cultural Resource Information System data (NMCRIS; July 2015), within the subwatershed there are 189 recorded sites and approximately 21% of the subwatershed (7,249 ac) have been inventoried for cultural resources by 118 unique investigations since 1975.

The Headwaters Kimbeto Wash subwatershed totals 26,784 acres. Based on New Mexico Cultural Resource Information System data (NMCRIS; July 2015), within the subwatershed there are 226 recorded sites and approximately 19% of the subwatershed (5112 ac) have been inventoried for cultural resources by 209 unique investigations since 1975. This inventory coverage is likely higher as not all survey data is digitally available (e.g., Navajo lands, surveys since July 2015).

There are no properties listed on the National Register of Historic Places, New Mexico State Register of Cultural Properties, Chaco Protection Sites, World Heritage Sites, or National Historic Trails within the CIAA.

There will be no negative cumulative impact on cultural resources as no historic properties are present. There will be no known negative cumulative impact on the landscape from the proposed action that would affect the seven aspects of integrity (location, design, setting, materials, workmanship, feeling, association) of known historic properties. The Proposed Action is >15 miles from Chaco Culture National Historical Park (CCNHP). Based on a GIS viewshed analysis no aspects of the Proposed Action lie within view of any CCNHP KOP. A positive cumulative effect is the additional scientific information yielded by the archaeological survey both in terms of site specific information and the amount of the landscape inventoried for cultural resources.

Risks of impacting unknown (i.e., buried) historic properties is normally negligible as cultural resources “discoveries” during surface disturbing components of a proposed action are infrequent in the FFO. Since FY2000, 28 discoveries have occurred in association with 21,290 actions (e.g. road, well, pipeline, etc.), or 1:760. During that period 153,626 ac of land were inspected for cultural resources, with an average of 7.2 ac per action and one discovery per 5,472 ac per discovery. All authorizations (e.g., APDs, R-O-Ws) have stipulations, under penalty of law, requiring the reporting of and avoidance of further disturbing cultural discoveries during a proposed action. Where the risk of discoveries can be reasonably expected (e.g., $\leq 100'$ of a known historic property, or in environmental settings known or suspected to be conducive to buried sites), archaeological monitoring by a qualified and permitted archaeologist during initial disturbance (e.g., balding, trenching) is normally required. If buried historic properties are discovered, collaborative steps are taken to protect them in place or recover their important information.

3.8.3. *Impacts from Alternative C: Alternative Route*

Direct and Indirect Impacts

As designed Alternative C has the potential to be more disruptive to cultural resources than the Proposed Action route. The Proposed Action avoids any historical properties and significant archaeological sites. Alternative C has been subject in whole or in part to multiple cultural surveys since 1980 for various projects. From the W Lybrook UT Nos. 701H & 702H location Alternative C follows an existing powerline. The original cultural survey for the powerline surveyed 60' either side of its center line. The powerline has one noneligible site (LA159231) associated with it that would likely be impacted. The pipeline will need approximately 1,400' x 100' of additional cultural survey along the east side of the powerline to achieve an inventoried area ca. 160' wide. Where Alternative C would turn northeast and follow an existing road to the Chaco Trunk No. 2 gathering system there is a large historic property (LA148164) that needs to be avoided and requires a yet undetermined amount of cultural survey (ca. $\leq 1,000' \pm$) to accomplish avoidance. From the plugged Elm Ridge State of New Mexico 16 021 to the existing Chaco Trunk No. 2 gathering system no additional cultural survey is needed provided one historic property (LA180008) can be avoided and Alternative C kept in existing survey. There are no places of traditional religious and cultural importance along Alternative C. Until a formal cultural resource survey of Alternative C, some of the statements above can only be considered as estimates but have been made as a result of analyzing existing cultural records..

Cumulative Impacts

Cumulative impacts would be similar to the Proposed Action, as effects to historic properties would be avoided.

3.9. Paleontology

3.9.1. *Affected Environment*

The proposed action is located within the paleontological rich area of the San Juan Basin of northwestern New Mexico. The BLM uses the Potential Fossil Yield Classification (PFYC) system to identify areas with a high potential to produce significant fossil resources (IM 2008-009). This system has ranked all lands within the BLM-Farmington Field Office (FFO) management acres as a Class 5 designation. Class 5 designations are described as being Very High Potential paleontological resource areas, thus requiring an assessment at the project level (IM 2008-011).

The BLM's Potential Fossil Yield Classification (PFYC, BLM 2008-009) system is a predictive modeling tool that was developed to provide baseline guidance for assessing and mitigating paleontological resources. It is intended to be used at an intermediate point in analyses and should be used to assist in determining the need for further mitigation assessment or actions (IM 2008-011). The PFYC is based on the fact that occurrences of paleontological resources are often closely tied to the geologic units that contain them. This classification does not reflect rare or isolated occurrences of significant fossils or individual localities, only the relative occurrence on a formation- or member-wide basis. Although, it is recognized that local differences have to be taken into account. Using the PFYC system, geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts.

The BLM FFO recognized eight Paleontological Special Designated Areas (SDAs) in the current Resource Management Plan (more than 135,000 acres) in order to preserve important paleontological resources for scientific study, protection, and other public benefits (BLM 2003b, 4-117). The BLM has determined that these areas require special management attention in order to protect, and prevent irreparable damage to important paleontological resources. The project is located entirely within the Lybrook Fossil Area. A paleontological survey was conducted by BLM paleontologist, Sherrie Landon. No fossils were found within the proposed project area

3.9.2. *Impacts from Alternative B: Proposed Action*

Direct and Indirect Impacts

No paleontological resources are currently known to occur within the proposed project area and, as such, would not be impacted by surface disturbance associated with the proposed project.

Cumulative Impacts

The analysis area for the proposed project area is within the Escavada Wash watershed. Existing surface disturbances within the spatial analysis area include an estimated 105 well pads for a total disturbance of 370.50 acres (78.75 acres long-term disturbance and 291.75 acres reclaimed). Potential surface disturbances within the spatial analysis area, anticipated to occur in the reasonably foreseeable future include an estimated 326 well pads for a total disturbance of 2,116.21 acres (489 acres long-term disturbance and 1,627.21 acres reclaimed, Engler et al. 2014). Additional potential surface disturbances within the spatial analysis area include WPX's future W Lybrook Unit development outlined in Section 3.1.2. There will be no negative cumulative impact on known paleontological properties as none are within the pipeline ROW. There are no cumulative impacts to paleontological resources due to this project.

3.9.3. *Impacts from Alternative C: Alternative Route*

Direct and Indirect Impacts

Direct and indirect impacts for Alternative C would be the same as described above for the Proposed Action.

Cumulative Impacts

Cumulative impacts would be the same as described above for the Proposed Action.

3.10. Public Health and Safety

3.10.1. *Affected Environment*

The proposed project would comply with the use and disposal of hazardous materials as regulated primarily under RCRA outlined above in Section 1.5.6. No extremely hazardous substances (40 CFR 355) would be used during the Proposed Action. Hazardous substances that may be found at the site may

include minimal quantities of materials that may be necessary welding or gluing. Flammable or combustible substances such as fuels and acids/gels (corrosives) associated with vehicles and the welding processes may also be found at the site. These materials may include oil, fuel, hydraulic fluid, and coolants. These chemicals are subject to reporting under the Emergency Planning and Right-to-Know Act of 1968 and may be used, produced, stored, transported or disposed of in association with the proposed project. Releases of non-freshwater fluids would be promptly handled in accordance with applicable federal and state regulations. Waste disposal would be made in accordance with applicable federal and state regulations and at permitted facilities.

Non-hazardous solid waste generated at the proposed project area would be stored in appropriate containers and disposed of at an approved facility. Human solid and liquid wastes would be generated primarily during the construction phases of the project and would be contained within portable facilities at the site.

Worker safety is regulated under the Occupational Safety and Health Act of 1970 (OSHA), as amended (29 USC 651). Safety practices in accordance with OSHA would be followed at all times during the project. Standard safety procedures for the proposed project would include pipeline markers, monitoring, and inspections that are required by federal and state regulations.

The proposed project area is fairly remote and roads in the area are generally unimproved dirt roads used to access natural gas facilities and a few remote residents in the area. These roads may become hazardous or impassable during periods of inclement weather. Exposure of the public to activities associated with the Proposed Action is limited by the remoteness of the location and proximity to areas where the general public may occur. The nearest town, Bloomfield (population 7,801 [U.S. Census Bureau 2015]), is approximately 38.7 road miles to the north-northwest, and U.S. Highway 550 is located approximately 0.2 miles to the north. There are very few residents or recreationist in the area. There are no BLM SMA's managed for recreation located within the Escavada Wash watershed. The closest residence to the proposed project area is approximately 0.71 miles southwest.

All WPX employees maintain a safety and emergency response plan (WPX Emergency Response One Plan) at all times. This plan provides guidance on safety procedures, how to respond to an emergency, and the required notifications, along with all pertinent contact numbers. Additionally, all WPX contractors are required to maintain a safety and emergency response plan.

3.10.2. Impacts from Alternative B: Proposed Action

Direct and Indirect Impacts

The proposed project would be located within an existing oil and gas field currently experiencing concentrated development. Risks to public health and safety associated with the Proposed Action include increased traffic on public roads, wildfire, pipeline leakage, rupture, fire, explosion, and operation of construction equipment. Additional public health and safety risks include spills or releases of wastes, chemicals, or hazardous materials.

Under the proposed action, increased use and frequency of construction vehicles, heavy equipment, chemicals and personnel in the area could result in a safety issue for the public. Transportation issues are a primary safety concern. Vehicles associated with the oil and gas industry utilize the developed highway and county road systems. In addition, the oil and gas industry constructs and utilizes dirt access roads in the area. These roads, most of which are accessible by the public, are often hazardous, particularly during and following periods of inclement weather. Therefore, there would be an increased potential for traffic accidents. Dust associated with construction activities or travel on dirt access roads may result in poor visibility in the area. Following construction, traffic levels would return to current levels; long-term effects on transportation would be positive due to the reduction of truck traffic from the piping of products from multiple well locations in the W Lybrook UT to a gathering system. Design Features and BMPs for dust abatement and erosion control (e.g. water application) would be utilized to reduce fugitive dust and adverse road conditions.

Material Safety Data Sheets (MSDS) are available at the project site at all times for all chemicals, compounds and/or substances which would be used during any phase of the Proposed Action. In the event of a release, notification would be made in compliance with CERCLA and the national BLM Notice of Lessees (NTL)-3A, as well as any state requirements. Design Features and BMPs outlined in Section 2.2.2. (Description of Proposed Project) would be followed to minimize potential impacts from hazardous and non-hazardous wastes. Adherence to company safety policies and BLM-FFO stipulations would mitigate public health and safety hazards. The hauling of project equipment and materials on public roads would comply with all Department of Transportation regulations. All work associated with the Proposed Action would be performed in compliance with appropriate OSHA regulations.

Health and safety risks for construction workers include operation of heavy equipment, welding activities, and working in the vicinity of other utilities (primarily other oil and gas gathering pipelines and overhead power lines). Although unlikely, well explosions, blowouts and fire are considered possible risks. WPX maintains an emergency response plan and all personnel have been trained in industry standard safety practices to prevent and respond to emergencies. Personnel are trained and certified on a regular basis in order to be current on safety procedures and emergency response protocol. The Association of Mechanical Engineers (ASME) and American Petroleum Institute (API) issue standards for design, construction, installation, and maintenance of pressure vessels, fittings, piping, and pipelines. WPX personnel and their contractors would build, operate, and maintain all equipment and pipeline according to these standards, which are intended to minimize the potential for explosions and failure of the equipment.

Cumulative Impacts

The analysis area includes the proposed project area and the existing oil and gas field within the BLM-FFO regional management area. The general BLM-FFO region has been developed by the oil and gas industry for over six decades, which contributes to public health and safety concerns in the area.

Transportation issues are a primary safety concern. Vehicles associated with the oil and gas industry utilize the developed highway and county road systems. In addition, the oil and gas industry constructs and utilizes dirt access roads in the area. These roads, most of which are accessible by the public, are often hazardous, particularly during the following period of inclement weather. The proposed project would cumulatively reduce the amount of truck traffic from the multiple wells over time through the piping of all products from wells within the W Lybrook UT to a central delivery point.

Given the fact that the Proposed Action would be located within an existing oil and gas field, direct and indirect cumulative impacts to public health and safety as well as to worker safety would not be measurably different when compared to those from past present and reasonably predicted future activities.

3.10.3. Impacts from Alternative C: Alternative Route

Direct and Indirect Impacts

Direct and indirect impacts to general wildlife from Alternative C would be the same as the Proposed Action with the exception of the following:

- There would be additional safety concerns for pipeline construction personnel and maintenance crews associated with Alternative C compared to the Proposed Action due to construction operations in close proximity to an overhead transmission line for 1,546 feet.

Cumulative Impacts

Cumulative impacts would be the same as described above for the Proposed Action.

3.11. Environmental Justice

3.11.1. Affected Environment

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, requires that federal agencies identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

Environmental justice refers to the fair treatment and meaningful involvement of people of all races, cultures, and incomes with respect to the development, implementation, and enforcement of environmental laws, regulations, programs, and policies. It focuses on environmental hazards and human health to avoid disproportionately high and adverse human health or environmental effects on minority and low-income populations.

Guidance on environmental justice terminology developed by the President's Council on Environmental Quality (CEQ 1997) is discussed below.

- Low-income population. A low-income population is determined based on annual statistical poverty thresholds developed by the US Census Bureau. In 2012, poverty level is based on total income of \$11,720 for an individual and \$23,283 for a family of four (US Census Bureau 2012a). A low-income community may include either a group of individuals living in geographic proximity to one another or dispersed individuals, such as migrant workers or Native Americans.
- Minority. Minorities are individuals who are members of the following population groups: American Indian, Alaskan Native, Asian, Pacific Islander, Black, or Hispanic.
- Minority population area. A minority population area is so defined if either the aggregate population of all minority groups combined exceeds 50 percent of the total population in the area or if the percentage of the population in the area comprising all minority groups is meaningfully greater than the minority population percentage in the broader region. Like a low-income population, a minority population may include either individuals living in geographic proximity to one another or dispersed individuals.
- Comparison population. For the purpose of identifying a minority population or a low-income population concentration, the comparison population used in this study is the state of New Mexico as a whole

Low-income Populations

Income and poverty data estimates for study area counties from the US Census Small Area Poverty Estimates model indicate that the percent of the population living below the poverty level in the socioeconomic study area as a whole is slightly above that of the state (21.3 percent and 20.6 percent), but it is much higher than the national average of 12.1 percent (Table 12). Poverty levels ranged from 37.7 percent in McKinley County to 13.7 percent in Sandoval County. Only that of Sandoval County was below the state average.

Table 12. Study Area County Population in Poverty (2002-2012)

	McKinley County	Rio Arriba County	Sandoval County	San Juan County	Study Area Total	New Mexico	United States
Percent of Population in Poverty 2002	21,766 30.2%	7,165 17.7%	19,934 11.1%	22,152 18.2%	71,017 21.3%	421,123 20.6%	34,569,951 12.1%
Percent of Population in Poverty 2012	27,296 37.7%	8,806 22.0%	18,502 13.7%	25,802 20.3%	80,406 21.5%	327,444 17.7%	48,760,123 15.9%
Median Household Income 2002	\$25,197	\$30,557	\$45,213	\$34,329	N/A	\$34,827	\$45,409
Median Household Income 2012	\$29,821	\$36,900	\$57,376	\$45,901	N/A	\$42,828	\$51,371
Classified as Low Income Population in 2012 based on CEQ	No	No	No	No	No	NA	NA

Table 12. Study Area County Population in Poverty (2002-2012)

	McKinley County	Rio Arriba County	Sandoval County	San Juan County	Study Area Total	New Mexico	United States
guidelines?							
Source: US Census Bureau 2013							

Similarly, estimates from 2012 indicate that Sandoval and San Juan Counties had household median incomes (\$57,376 and \$45,901) that were above the state level of \$42,828. McKinley County (\$29,821) and Rio Arriba County (\$36,900) were below that of the state in 2012 (Table 13). While no area communities meet the CEQ definition of a low-income population area (50 percent or higher), the highest poverty rates were seen in Bloomfield (29 percent), Espanola (26.3 percent), and Bernalillo (24.1 percent).

Table 13. Study Area Key Community Race/Ethnicity and Poverty Data

Community	% Population Racial or Ethnic Minority	Classified as Minority Population based on CEQ?	% of Individuals Below Poverty	Classified as Low-income Population based on CEQ?
Aztec	36.4%	No	14.4%	No
Bernalillo	78.8%	Yes	24.1%	No
Bloomfield	55.8%	Yes	29.0%	No
Espanola	91.6%	Yes	26.3%	No
Farmington	48.8%	No	15.5%	No
Gallup	76.9%	Yes	20.9%	No
Rio Rancho	46.7%	No	9.8%	No
Source: US Census Bureau 2012b				
Note: American Community Survey estimates are based on data collected over a 5-year time period. The estimates represent the average characteristics of populations between January 2008 and December 2012 and do not represent a single point in time.				

Census Tracts are geographic regions within the United States that are defined by the US Census Bureau in order to track changes in a population over time. Census Tracts are based on population sizes and not geographic areas. The average population of a Census Tracts is about 4,000 people, so rural areas that are sparsely populated may have very large Census Tracts while densely populated urban areas may have very small Census Tracts.

When broken down by Census Tract, 3 out of 87 tracts in the socioeconomic study area have greater than 50 percent of individuals living below the poverty line: Census Tract 9440 in eastern McKinley County had an individual poverty rate of 54.6 percent; Census Tract 9405 in southwestern McKinley County had an individual poverty rate of 59.4 percent; and Census Tract 9409 in northwestern Sandoval County had an individual poverty rate of 51.9 percent (US Census Bureau 2012b). These 3 Census Tracts are all relatively large, indicating a sparsely populated, rural area.

Minority Populations

Based on 2008-2012 data, minorities made up 59.5 percent of the population in New Mexico, compared to 36.3 percent in the United States as a whole (Table 14). The proportion of minorities in the socioeconomic study area (65.3 percent) substantially exceeded the United States and is slightly higher than the state average. At the county level, the population ranged from 89.7 percent minority in McKinley County to 52.8 percent in Sandoval County. Within relevant tribal nations, Native Americans represented the vast majority of the population. The largest minority groups were Hispanics/Latinos in Rio Arriba and Sandoval Counties and Native Americans in McKinley and San Juan Counties.

Table 14. Study Area County Population by Race/Ethnicity (2008-2012)

Population	McKinley County	Rio Arriba County	Sandoval	San Juan	Study Area	New Mexico	United States	Jicarilla Apache Nation	Navaho Nation	Ute Mountain Nation
Hispanic or Latino ethnicity of any race	9,744	28,714	46,334	24,496	109,288	952,569	50,545,275	382	2,958	99
	13.6%	71.4%	35.3%	19%	29%	46.3%	16.4%	11.6%	1.7%	6.0%
White alone	7,413	5,370	61,977	54,218	128,978	831,543	196,903,968	74	3,762	47
	10.3%	28.6%	47.2%	42.2%	34.67%	40.5%	63.7%	2.3%	2.2%	2.9%
Black or African American alone	353	149	2,704	794	4000	35,586	37,786,591	0	250	5
	0.5%	0.4%	2.1%	0.6%	1.08%	1.7%	12.2%	0%	0.1%	0.3%
American Indian or Alaskan Native alone	52,358	5,629	15,964	46,676	120,627	176,766	2,050,766	2,692	162,920	1,429
	72.8%	14.0%	12.2%	36.3%	32.43%	8.6%	0.7%	82.0%	94.3%	87.0%
Asian alone	506	173	1,685	464	2828	25,411	14,692,794	73	834	14
	0.7%	0.4%	1.3%	0.4%	0.76%	1.2%	4.8%	2.2%	0.5%	0.9%
Native Hawaiian and Other Pacific Islander alone	38	7	100	72	217	989	480,063	0	209	0
	0.1%	0%	0.1%	0.1%	0.06%	<.01%	0.2%	0%	0.1%	0%
Some Other Race	7	22	437	84	550	3,623	616,191	0	102	0
	<.01%	0.1%	0.3%	0.1%	0.15%	0.2%	0.2%	0%	0.1%	0%
Two or more Races	1,469	137	2,101	1,796	5,503	28,800	6,063,063	62	1,660	49
	2.0%	0.3%	1.6%	1.4%	1.48%	1.4%	2.0%	1.9%	1.0%	3.0%
Classified as Minority Population based on CEQ guidelines?	Yes	Yes	Yes	Yes		Yes	NA	Yes	Yes	Yes

Source: US Census Bureau 2012b

Note: American Community Survey estimates are based on data collected over a 5-year time period. The estimates represent the average characteristics of populations between January 2008 and December 2012 and do not represent a single point in time

Based on the CEQ definition of a minority population area (minority residents exceed 50 percent of all residents), Bernalillo, Bloomfield, Espanola, and Gallup all are considered minority communities.

When examined at the Census Tract level, there are 24 out of 87 tracts that have a minority population greater than 50 percent. These range from Census Tract 6.1 located just north of the city of Aztec with a minority population of 80.5 percent to Census Tract 107.17 located north of the city of Rio Rancho with a minority population of 50.2 percent (US Census Bureau 2012b). These Census Tracts are relatively small and are based around the city of Rio Rancho and the Aztec/Farmington/Bloomfield area.

Native American Populations

Data in Table 14 account for a substantial portion of the study area population in some areas, notably McKinley and San Juan Counties, where the population is 72.8 and 36.3 percent American Indian respectively. Three tribal governments have reservations within the planning area: the Jicarilla Apache

Nation, the Navajo Nation, and the Ute Mountain Nation (Table 15). The Southern Ute Nation has lands just north of the planning area in the state of Colorado, but none within the planning area. Almost one half of the planning area is tribal lands. Each tribe maintains a general concern for protection of and access to areas of traditional and religious importance, and the welfare of plants, animals, air, landforms, and water on reservation and public lands. Policies established in 2006 by the BLM and US Forest Service, in coordination with federal tribes, ensure access by traditional native practitioners to area plants. The policy also ensures that management of these plants promotes ecosystem health for public lands. The BLM is encouraged to support and incorporate into their planning traditional native and native practitioner plant-gathering for traditional use (Boshell 2010).

Table 15. Tribal Nations in the Planning Area

Tribe	Acres in Planning Area	General Location
Jicarilla Apache Nation	739,600	The majority of the Jicarilla Apache Nation is located in western Rio Arriba County, but within the eastern portion of the planning area
Navajo Nation	860,900	A portion of the Navajo Nation extends into western San Juan County and into the western portion of the planning area
Ute Mountain Nation	103,500	A portion of the Ute Mountain Nation extends into the northern portion of San Juan County, just east of the Navajo Nation, and into the northern portion of the planning area
Unknown	196,300	Lands located in the southern portion of the planning area [Note to BLM: this is due to inconsistencies between US Census Bureau tribal areas dataset and BLM land status dataset.]
Source: BLM GIS 2014, US Census Bureau 2014		

3.11.2. Impacts from Alternative B: Proposed Action

Direct and Indirect Impacts

As noted in the PRMP/FEIS, most activities, including oil and gas development on federal land in the San Juan Basin occur without influence of demographic or income values. They are primarily the response of various resource values and are balanced for overall public benefit. San Juan County, along with the other counties that make up the larger development area, has a high proportion of minority populations compared to the state and national percentages. San Juan County has a distinctly high percentage of American Indians, while Rio Arriba has a large Hispanic population. The poverty levels for all counties, except Sandoval County were higher than the state and national level. As such, the potential exists for minority and low-income populations to be affected by the proposed action.

Specific issues of concern outlined in the PRMP/FEIS include the potential for economic impacts (such as job losses or increases), potential for land use impacts (as outlined in previous sections), and the potential for conditions that pose a public health or safety risk. The development and production of the wells in the W Lybrook UT and the establishment of a pipeline infrastructure would allow WPX to develop their leases and provide additional natural gas and oil for the national energy market. This would generate federal and state tax revenues as well as revenue for WPX, its contractors, and additional jobs, royalties, and revenues to local economies. The additional jobs and economic activity in the region from oil and gas development have the potential to benefit local communities and residents and is considered a positive effect. The proposed trunk pipeline would be part of the needed pipeline infrastructure for the larger scale oil and gas development in the region. Potential land use impacts and public health and safety risks have been addressed in both previous sections of this document and/or the PRMP/FEIS. Project specific design features and best management practices (Section 2.2.2), as well as stipulations in the ROW Grants, help to reduce adverse impacts to the surrounding communities as they relate to land use and public health and safety. See PRMP/FEIS for further discussion of Environmental Justice (BLM 2003a).

Cumulative Impacts

The analysis area is the BLM-FFO regional management area. The proposed action would contribute to the effects of the local economy in the form of increased natural gas production, new jobs and increased revenues. Any additional well development and production in the area would result in incremental impacts to local economy. The energy industry is subject to boom and bust cycles. However, the continued development of these resources still represents a desirable economic engine. With the development of these resources being concentrated in Rio Arriba and San Juan counties that both have disproportionately minority population, benefits from growth in resource development both federal and non-federal interests would provide jobs and therefore benefit these groups (BLM 2003a, 4-129).

3.11.3. Impacts from Alternative C: Alternative Route

Direct and Indirect Impacts

Direct and indirect impacts for Alternative C would be the same as described above for the Proposed Action.

Cumulative Impacts

Cumulative impacts would be the same as described above for the Proposed Action.

4. SUPPORTING INFORMATION

4.1. Tribes, Individuals, Organizations, or Agencies Consulted

The BLM fulfills its responsibilities under the National Historic Preservation Act (NHPA) through a number of agreements. The National Programmatic Agreement (NPA 2012) between the BLM, Advisory Council on Historic Preservation (ACHP), and the National Council of State Historic Preservation Officers (NCSHPO) allows the agency to fulfill its NHPA responsibilities according to the provisions of the NPA in lieu of 36 CFR 800.3 through 800.7 regulations. The NPA, which applies to all BLM activities below specified thresholds, provides among other things, regulatory relief in many instances from the requirement for case-by-case review by State Historic Preservation Officers (SHPOs) and the ACHP, in exchange for managers' maintenance of appropriate staff capability and observance of internal BLM standards as set out in the 8100 Manual series.

The New Mexico BLM has a two-party protocol with the New Mexico SHPO (BLM-SHPO 2014) specifically encouraged by the NPA. This protocol details how the New Mexico BLM and SHPO will regulate their relationship and consult. Specifically, this document outlines among other things, how and when consultation will be conducted between the BLM, SHPO, Tribes, and the public. The protocol also outlines when case-by-case SHPO consultation is or is not required for specific undertakings and the procedures for evaluating the effects of common types of undertakings and resolving adverse effects to historic properties. These common types of undertakings regularly include the common actions undertaken in the BLM FFO.

4.2. List of Preparers

Table 16 contains a list of tribes, individuals, organizations, and agencies invited to attend the on-site for the project.

Table 16. Tribes, Individuals, Organizations, and Agencies Invited to the On-Site

Name	Tribe, Individuals, Organization, or Agency	Attended On-Site
Pete Donkers	Earthworks	No
Tweeti Blanchet	Concerned Citizen	No
Jeff Tafoya	BLM FFO	Yes

Bruce Baizal	Earthworks	No
Counselor Chapter	Navajo Nation	No
Don Schreiber	Devils Spring Ranch	No
Lori Goodman	Dine Care	No
Mike Eisenfield	San Juan Citizens Alliance	No
Nageezi Chapter	Navajo Nation	No
Samuel Sage	Counselor Chapter Navajo Nation	No
John Kendall	BLM FFO	No
Casey Haga	Energy Inspection Services (EIS)	Yes
Chris Lopez	EIS	Yes
Mindy Paulek	EIS	Yes

This EA was prepared by EIS in conformance with the standards of and under the direction of the BLM-FFO. The following individuals assisted in the preparation of this EA:

- Mindy Paulek, Biologist, EIS
- Amanda Hoffman, Planning and Environmental Specialist, BLM-FFO
- John Kendall, Wildlife Management Biologist, BLM-FFO
- Jim Copeland, Archaeologist, BLM-FFO
- Sherrie Landon, Paleontologist and Environmental Protection Specialist, BLM-FFO
- Scott Hall, Environmental Protection Specialist, BLM-FFO
- Craig Willems, Environmental Protection Specialist, BLM-FFO

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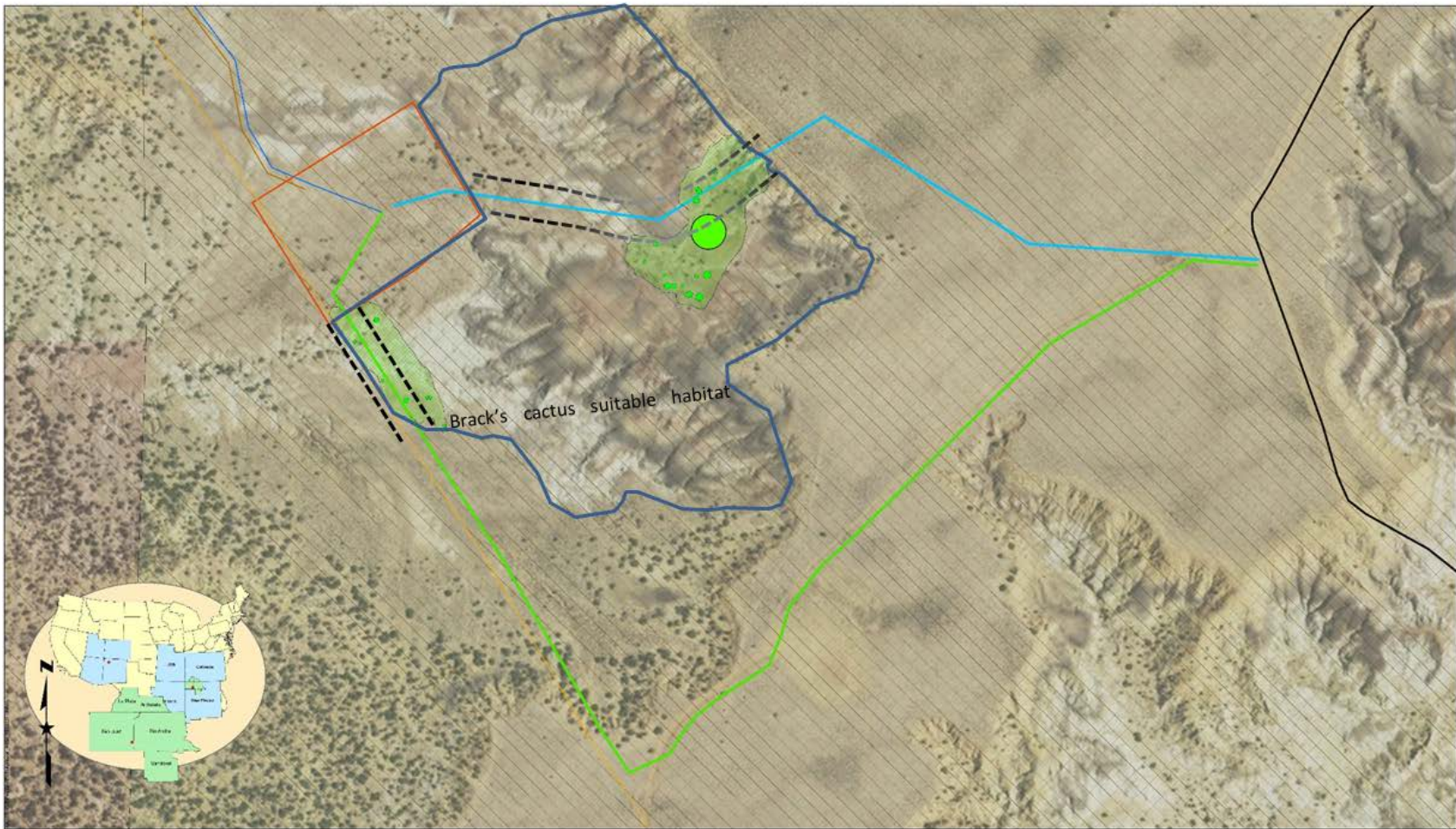
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APPENDIX A. MAPS



Sources:
BLM
San Juan County
USGS
NCE Surveyors
WPX Energy GIS

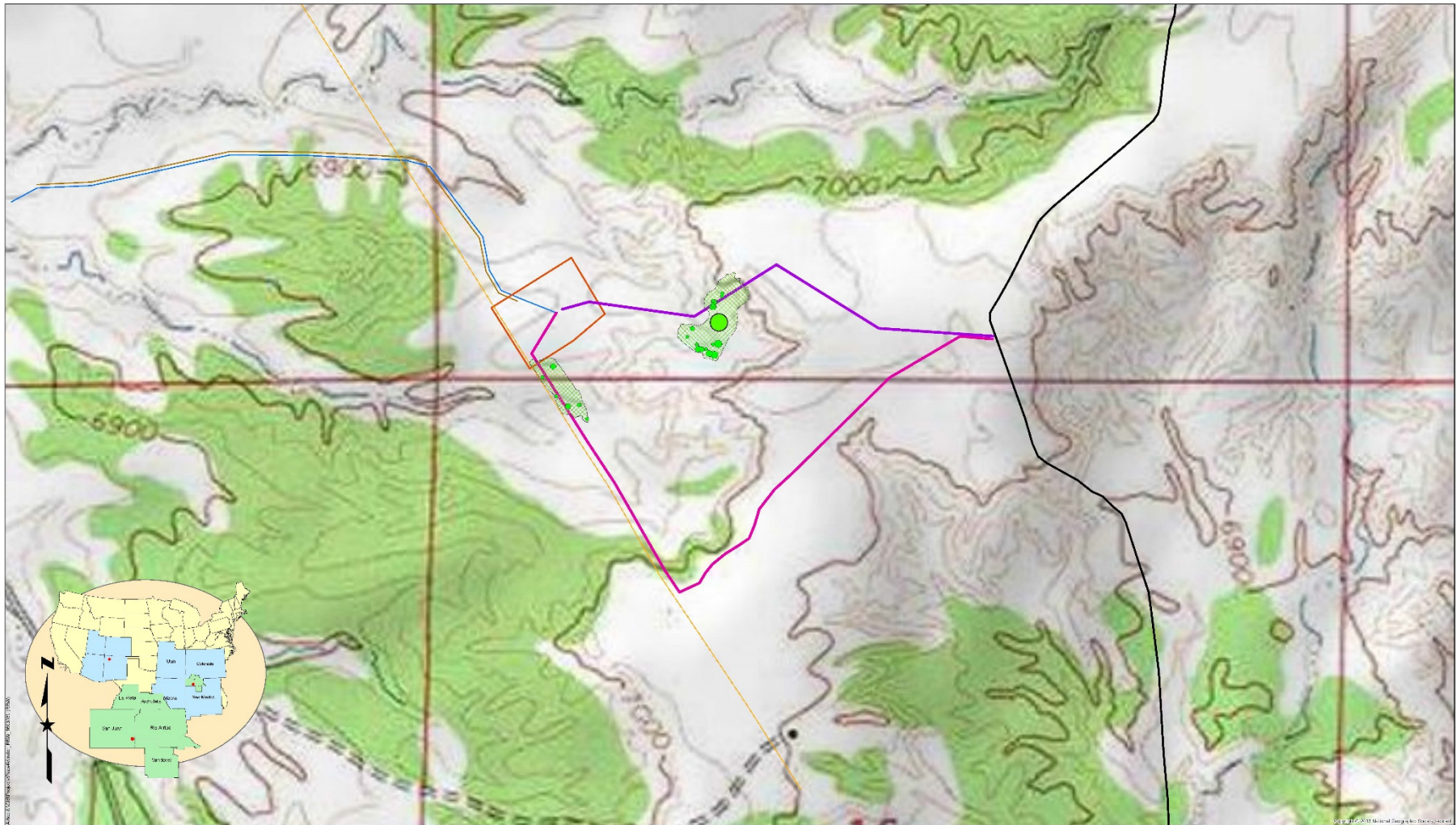
0 80 160 320 480 640 Feet
Scale (absolute) = 1:1,500

WPXENERGY.

W Lybrook UT Trunk 1 Aerial Map

Model: 3050110





Sources:

BLM
San Juan County
USGS
NCE Surveyors
WPX Energy GIS

0 160 320 640 960 1280 Feet
Scale (absolute) - 1:3,000



W Lybrook UT Trunk 1 Topographic Map

Modified: 3/26/2015



APPENDIX B. PLATS

APPENDIX C. PHOTOGRAPHS



Photo Number:	1	Location:	W Lybrook Trunk No. 1 Tie in on Chaco Trunk No. 2 (Start)
		Photo Direction:	West



Photo Number:	2	Location:	W Lybrook Trunk No. 1 end on Proposed W Lybrook UT No. 701 & 702 well pad
		Photo Direction:	East

APPENDIX D. SURFACE RECLAMATION PLAN



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Farmington District Office
6251 College Blvd., Suite A
Farmington, New Mexico 87402
www.blm.gov/nm



In Reply Refer To:
NM FO10-2016-0059-EA

March 30, 2016

Re: Application for Transportation and Utility Systems and Facilities on Federal Lands – WPX Energy Production LLC's Proposed W Lybrook Trunk 1 Pipeline Project

Dear Reader:

The Bureau of Land Management (BLM) is providing you with an unsigned copy of the Environmental Assessment (EA), for the WPX Energy Production LLC's Proposed W Lybrook Trunk 1 Pipeline Project.

WPX Energy Production LLC has indicated their interest to construct a pipeline system to transport crude oil, natural gas, produced water and liquid hydrocarbons from the West Lybrook Unit to its 2-1 Central Delivery Point (CDP).

The enclosed document serves as notice of the environmental analysis process to fulfill the requirement of the National Environmental Policy Act. A 30 day public comment period will begin on March 30, 2016, and end on April 29, 2016. If you are interested in participating in the process and have concerns, issues or alternatives you would like to see addressed, we request you respond by supplying your written or e-mail comments to:

Address: Marcella Martinez, Planning and Environmental Specialist
Bureau of Land Management Farmington Field Office
6251 College Boulevard, Ste A.
Farmington, New Mexico 87402
E-mail: BLM_NM_FFO_Comments@blm.gov

The EA will be available on the Farmington BLM homepage at http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office.html. Your comments are important and will be considered in the final environmental analysis process. Please note that public comments submitted for this review, including names, e-mail addresses, and street addresses of the respondents will be available for public review and disclosure at the above address during regular business hours (8:00 a.m. to 4:30 p.m.), Monday through Friday, except holidays.

Individual respondents may request confidentiality. If you wish us to withhold your name,

Individual respondents may request confidentiality. If you wish us to withhold your name, e-mail address, or street address from public review or from disclosure under the Freedom of Information Act, you must state this plainly at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

If you have any questions regarding this project, please contact Scott Hall, Realty Specialist at (505) 564-7721, in Farmington, New Mexico.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. A. Fields', with a stylized flourish extending to the right.

Richard A Fields
Field Manager

Enclosure:

EA – West Lybrook Trunk 1 Pipeline Project

**UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**

Farmington District
Farmington Field Office
6251 N College Blvd., Ste. A
Farmington, NM 87402

Finding of No Significant Impact

**WPX Energy Production, LLC's
W Lybrook Trunk 1
NEPA No. DOI-BLM-NM-F010-2016-0059-EA**

FINDING OF NO SIGNIFICANT IMPACT

I have determined that the proposed action, as described in Environmental Assessment (EA) DOI-BLM-NM-F010-2016-0059-EA will not have any significant impact, individually or cumulatively, on the quality of the human environment. Because there would not be any significant impact, an Environmental Impact Statement is not required.

In making this determination, I considered the following factors:

Context

The Farmington Field Office (FFO) is located in northwestern New Mexico. The field office boundaries include approximately 7,800,000 acres; 1.4 million surface acres and an additional 1 million acres of mineral estate are managed by the BLM. The distribution of BLM-managed lands is fairly well consolidated in the north and becomes increasingly mingled with Tribal lands to the south. BLM-managed lands abut the Navajo Reservation to the west and south, Jicarilla Apache Nation Reservation to the east, and the Ute Mountain Reservation and Southern Ute Indian Reservation to the north. Aztec Ruins National Monument and Chaco Culture National Historical Park, managed by the National Park Service, lie within the field office boundaries. The BLM manages approximately 18% of lands within a 10 mile radius of Chaco Culture National Historical Park.

The FFO encompasses the New Mexico portion of the San Juan Basin. The San Juan Basin and surrounding areas have been occupied by varied cultures since the Paleo Indian period (circa 10,000 BC). The San Juan Basin and Four Corners area have one of the most extensive prehistoric and protohistoric occupations in the United States. The most commonly known archaeological resources are the Anasazi structures at Chaco Culture National Historical Park, Mesa Verde National Park, and other National Park Service sites. Scattered across BLM-managed lands are similar, but smaller structures, which were probably related to these larger sites. Twenty-three Chacoan outliers are known to exist within the FFO. Each contains at least one Chacoan structure and most have associated communities, prehistoric roads, and great kivas along with features such as herraduras and special use areas. The FFO contains an extensive system of finely engineered roads radiating out from Chaco Canyon and extending a considerable distance to outlying sites through the San Juan Basin and beyond. These roads are remarkably straight and carefully constructed. The most notable is the Great North Road, which starts at Chaco Canyon and run north to the Aztec Ruins.

Located within the boundary of the FFO is much of Dinétah, the ancestral homeland to the Navajo. Here the Navajo constructed forked-stick hogans, shades, sweat lodges, and other structures over a several hundred year span. During a short period between 1680 and the mid-1700s, pueblitos were constructed, often associated with other structures. Although not firmly dated, extensive Navajo pictograph and petroglyph sites were painted, etched, pecked, or ground onto the sandstone cliffs of the canyons of

Dinétah. Most are believed to be ceremonial art which is no longer traditionally executed in a permanent form.

Native American Traditional and Sacred Areas are known to exist across the FFO. Many are associated with narrative accounts of origin or other traditional stories. Most of the identified sacred areas are associated with the Navajo culture. These places are still important in Navajo ceremonies and daily activities.

Historic Hispanic or Spanish and Anglo sites within the San Juan Basin primarily date from the late 1800s to the present. Although there are some early Spanish land grants in the southern portion of the FFO, most historic sites located on public lands are either Hispanic or Anglo homesteads with associated structures from the late 1800s and early 1900s. Associated with many clusters of homesteads were a school house and often a church which was visited every few months by a priest.

Cultural resource inventories have been conducted throughout the FFO for project undertakings, management studies, and scientific inquiries. As of April 2014, approximately 760,000 acres of the 7,800,000 acres in the FFO boundaries have been inventoried. Over 46,000 sites have been identified ranging from small artifacts to the 800-room structures in Chaco Canyon. Many of these sites are listed on the National Register of Historic Places and Chaco Culture National Historical Park along with several of the Chacoan sites which have been placed on the World Heritage List. The FFO manages 79 Areas of Critical Environmental Concern (ACECs) for relevant and important cultural values, including five World Heritage Sites.

The San Juan Basin is an important area for mammalian and reptilian fossils. A variety of paleontological resources exist in the FFO including animal fossils, fossil leaves, palynomorphs, petrified wood, and trace fossils occurring in the Triassic, Jurassic, Cretaceous, and Tertiary rocks. Dinosaur and other fossils have made significant contribution to the scientific record have been found and excavated in the FFO. Paleontological resources are present in the Bisti De-Na-Zin Wilderness Area, Ah-Shi-Sle-Pa Wilderness Study Area, Fossil Forrest Research Natural Area, and seven fossil areas identified in the 2003 Farmington Resource Management Plan.

The San Juan Basin is one of the largest natural gas fields in the nation and has been under development for more than 60 years. Oil was discovered by accident in the Seven Lakes area of McKinley County in 1911. Natural gas was discovered near Aztec, New Mexico, in 1920-1921 with oil of commercial quantity discovered near the Hogback in 1922 (Barnes 1951). Several small pipelines were built to carry the oil and gas from these discoveries to Aztec and Farmington, respectively. Development began in earnest in the late 1940s and early 1950s as the demand for natural gas increased. The FFO manages 2,765 active oil and gas leases in the San Juan Basin consisting of 2.1 million acres. Leasing began in the mid-1930s and accelerated in the late 1940s. By 1950, over 1 million acres were under lease.

In 1951, El Paso Natural Gas completed the first interstate pipeline out of the San Juan Basin to California. That same year, oil was discovered in the Mancos Shale in Dogie Canyon (Barnes 1951). Since that time, over 30,000 oil and gas wells have been drilled in the San Juan Basin with approximately 16,000 associated rights-of-way. Approximately 23,000 wells are currently producing. Since Stanolind Oil introduced hydraulic fracturing in 1949, nearly every well in the San Juan Basin has been fracture stimulated.

Intensity

1. The activities described in the proposed action and alternatives do not include any significant beneficial or adverse impacts (40 CFR 1508.27(b)(1)). Per 40 CFR 1500.1(b), the EA concentrated on issues that are truly significant to the action in question, rather than amassing needless detail. Issues have a cause and effect relationship with the proposed action or alternatives; are within the scope of the analysis; have not been decided by law, regulation, or previous decision; and are amendable to scientific analysis rather than conjecture (BLM 2008, page 40). The following issues were identified related to the proposed action and alternatives:

- How would the proposed project activities impact air resources?
- How would the proposed project activities impact upland vegetation?
- How would the proposed project activities impact the establishment and distribution of noxious and invasive weeds?
- How would the proposed project activities impact wildlife, including migratory bird species?
- How would the proposed project activities impact the following BLM Special Status Species: Bendire's thrasher (*Toxostoma bendirei*), golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), gunnison's prairie dog (*Cynomys gunnisoni*), Aztec gilia (*Aliciella Formosa*), and the Brack's hardwall cactus (*Sclerocactus cloveriae* ssp. *Brackii*)?
- How would the proposed project activities impact livestock grazing?
- How would the proposed project activities impact cultural resources?
- How would the proposed project activities impact paleontology?
- How would the proposed project activities impact public health and safety?
- How would the proposed project activities impact economic features of the community?

The EA includes a description of the expected environmental consequences of the proposed activities for those issues in Chapter 3.

2. The activities included in the proposed action and alternatives would not significantly affect public health or safety (40 CFR 1508.27(b)(2)). The following design features have been included in the proposed action to address any impacts to public health and safety:

The hauling of equipment and materials on public roads would comply with Department of Transportation regulations. No toxic substances would be stored or used within the proposed project area. WPX would have inspectors present during construction. Any accidents involving persons or property would immediately be reported to the BLM-FFO. WPX would notify the public of potential hazards by posting signage, as necessary.

No more than a half mile of trench, or the amount of trench that could be worked in a day, would be opened at one time. Backfilling operations would be performed within a reasonable amount of time to ensure that the trench is not left open for more than 24 hours. If a trench is left open overnight, it will be fenced with a temporary fence or a night watchman will be utilized.

3. The proposed activities would not significantly affect any unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas (40 CFR 1508.27(b)(3)). Unique characteristics are generally limited to those that have been identified through the land use planning process or other legislative, regulatory or planning processes (BLM 2008, page 71). The FFO does not contain any prime and unique farmlands, suitable or designated wild and scenic rivers, or designated caves. Table 1 discloses the distance of the proposed activities to identified wetlands. Table 2 discloses the distance of the proposed activities to National Park Service units and Congressionally designated areas. The proposed action and alternatives are not located within an Area of Critical Environmental Concern. Impacts to historic or cultural resources are described in the Cultural Resources section of the EA and discussed further under item 8.

Table 1. Distance of the Proposed Activities from Identified Wetlands

Identified Wetlands	Distance from Proposed Activities
Bancos	50.8 miles
Blanco	33.4 miles
Bloomfield	35.5 miles
Cutter Canyon	30.6 miles
Carrizo Oxbow	29.2 miles
Desert Hills	37.7 miles
Valdez	34.9 miles

Table 2. Distance of the Proposed Activities from Park Lands and Ecologically Critical Areas

Park Land or Ecologically Critical Area	Distance from Proposed Activities
Ah-Shi-Sle-Pah Wilderness Study Area	11.0 miles
Aztec Ruins National Monument	44.5 miles
Bisti De-Na-Zin Wilderness Area	17.1 miles
Chaco Culture National Historical Park	14.9 miles
Fossil Forest Research Natural Area	20.7 miles

4. The activities described in the proposed action do not involve effects on the human environment that are likely to be highly controversial (40 CFR 1508.27(b)(4)). Controversy in this context means disagreement about the nature of the effects, not expressions of opposition to the proposed action or preference among the alternatives (BLM 2008, page 71). Oil and gas development has occurred in the San Juan Basin for more than 60 years. While there may be controversy over the appropriateness of oil and gas development, there is not a high level of controversy or substantial scientific dispute over the impacts of that activity. The impacts of the proposed activities are described in Chapter 3 of the EA.

5. The activities described in the proposed action do not involve effects that are highly uncertain or involve unique or unknown risks (40 CFR 1508.27(b)(5)). As described under Context, oil and gas development has occurred in the San Juan Basin since the late 1940s and early 1950s. The field office has permitted over 30,000 wells and 16,000 rights-of-way. Hydraulic fracturing has occurred on nearly every well in the San Juan Basin since the 1950s. As such, the FFO has decades of experience and is knowledgeable about the impacts and risks associated with the proposed activities.

6. My decision to implement these activities does not establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration (40 CFR 1508.27(b)(6)). Approval of these activities in no way assures approval of any future activities.

7. The effects of the proposed activities would not be significant, individually or cumulatively, when considered with the effects of other actions (40 CFR 1508.27(b)(7)). Direct, indirect, and cumulative impacts are described in Chapter 3 of the EA.

8. I have determined that the activities described in the proposed action will not adversely affect or cause loss or destruction of scientific, cultural, or historical resources, including those listed in or eligible for listing in the National Register of Historic Places (40 CFR 1508.27(b)(8)). The proposed activities are not located in an ACEC containing relevant and important cultural values. Cultural resource surveys were completed for the proposed action and a Cultural Resource Record of Review, BLM Report Number 2016(I)020F was signed on December 8, 2015. No effects to cultural resources are anticipated. Pages 40 to 43 of the March 2016 Environmental Assessment DOI-BLM-NM-F010-2016-0059-EA describe the effects to cultural resources.

9. The proposed activities are not likely to adversely affect any endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (40 CFR 1508.27(b)(9)). The project area does not contain any know population or designated habitat for federally listed species. Pages 35 – 38 of the March 2016 Environmental Assessment DOI-BLM-NM-F010-2016-0059-EA describe the effects to Special Status Species.

10. The proposed activities will not threaten any violation of Federal, State, or local law or requirements imposed for the protection of the environment (40 CFR 1508.27(b)(10)). Sections 1.4 and 1.5 of the EA describe the relationship of the proposed activities to relevant laws, policies, regulations, and plans.

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APPROVED:

Richard A. Fields
Field Manager
BLM Farmington Field Office

Date